

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 5,9 c
Edition : 01.07.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 349

Injection pump
Pump designation : PES6A900410RS2757
EP type number : 0 410 896 086
Governor
Governor design. : RSV425...100QA1C2233
Governor no. : 0 420 232 496

Customer-spec. information
Customer : IVECO-FIAT

Engine : 8065.25.080

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35
: (2.20...2.40)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 12.10...12.20
Del. quantity cm³/ : 9.3...9.4
100 s : (9.1...9.6)
Spread cm³ : 0.3
100 s : (0.5)

2nd speed rpm : 425.0
Rack travel in mm : 7.1...7.3
Del. quantity cm³/ : 1.0...1.6
100 s : (0.8...1.8)
Spread cm³ : 0.2
100 s : (0.4)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 800
Del. quantity : 93.0...94.0
1000 : (91.0...96.0)
Spread cm³ : 3.00
1000 : (5.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 11.10
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1080...1110
4th rack travel in: 1240

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 25...33

Setting point w/out bumper spring

Speed rpm : 425

Rack travel in mm : 7.2

Testing:

Speed rpm : 100

Minimum rack travel: 19.50

Speed rpm : 425

Rack travel in mm : 7.10...7.30

Rack travel in mm : 2.00

Speed rpm : 450...510

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 12.10...12.20

2nd speed rpm : 500

Rack travel in m: 12.10...12.30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 800

Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.90...12.00

2nd pressure hPa : 780

Rack travel in m: 12.00...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del. quantity cm³/ : 79.0...80.0

1000 s: (77.0...82.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 93.0...103.0

1000 s: (90.0...106.0)

Rack travel in mm : 19.50...21.00

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 1
 Edition : 15.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 350
 Injection pump
 Pump designation : PES6A1000410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100A2C2234
 L
 Governor no. : 0 420 232 498

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW04

1st version kW : 122.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

A03

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del. quantity cm³/ : 10.0...10.2

100 s : (9.8...10.4)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 1.9...2.3

100 s : (1.6...2.5)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 100.5...102.5

1000 : (98.5...104.5)

Spread cm³ : 3.50

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.60
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1195...1205
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 700
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 123.5...126.5
1000 s: (121.0...129.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (125.0...155.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark = 12,5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 2
 Edition : 15.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 351
 Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100A2C2234
 -1L
 Governor no. : 0 420 232 499

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 TRW01

1st version kW : 106.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

A05

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.70...9.80

Del.quantity cm³/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.1...5.3

Del.quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 8.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1190...1200
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 4.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.70...9.80
2nd speed rpm : 700
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 110.5...113.5
1000 s: (108.0...116.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1145...1155

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.10...5.30

A06

Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark = 12,5° after
start of delivery cyl. 1. rque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 3
 Edition : 15.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 352
 Injection pump
 Pump designation : PES6A1000410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV400...1100A2C2204
 -4L
 Governor no. : 0 420 232 500

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 ADW-01

1st version kW : 146.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

A07

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.0...5.2

Del. quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 11.00
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1210...1220
3rd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 530...590

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (125.0...155.0)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.00...5.20
Del. quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Start-of-delivery mark = 12,5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 b 1
 Edition : 15.06.88
 Replaces : 14.1.88
 Test oil : ISO-4113
 Combination no. : 0 401 276 049
 Injection pump
 Pump designation : PES6A100D410RS3034
 EP type number : 0 411 206 016
 Governor
 Governor design. : RSV600...1100A2C2080
 L
 Governor no. : 9 420 234 159

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 A

1st version kW : 152.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 1.95...2.05
 : (1.90...2.10)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 12.9...13.1

100 s : (12.7...13.3)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 600.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 2.7...3.1

100 s : (2.5...3.2)

Spread cm³ : 0.6

100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 500

Del. quantity : 129.0...131.0

1000 : (127.0...133.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 33...41

Testing:

1st rack travel in: 10.70

Speed rpm : 1145...1155

2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...24
Setting point w/out bumper spring
Speed rpm : 600
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 600
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 630...690

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.60...8.70

Measurement

Speed 1/min : 500

1st pressure hPa : 333
Rack travel in m: 11.55...11.65
2nd pressure hPa : 233
Rack travel in m: 10.75...11.15

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : -
1000 s: (65.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100

A10

Del.quantity cm³/ : 170.0...190.0
1000 s: (165.0...195.0)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 4.70...4.90

LOW IDLE

Speed rpm : 600
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 27.0...31.0
1000 s: (25.5...32.5)
Spread cm³ : 6.00
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE23751

Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : GUS 31,8 a3
Edition : 05.07.88
Replaces : 19.12.86
Test oil : ISO-4113

Combination no. : 0 401 830 709

Injection pump
Pump designation : PE12P130A120RS3094-2
EP type number : 0 411 830 705
Governor
Governor design. : RQV350...900PA749
Governor no. : 0 421 813 480

Customer-spec. information
Customer : GUASCOR

Engine : E318

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 074

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 9.00...12.00

A11

Firing order : 1-12- 9- 4- 5- 8-
11- 2- 3- 10- 7- 6

Phasing : 0-45-60-105-120-165-
180-225-240-285-300-
345

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 8.50...8.60

Del. quantity cm³/ : 18.8...19.1

100 s : (18.4...19.4)

Spread cm³ : 0.6

100 s : (1.0)

2nd speed rpm : 350.0

Rack travel in mm : 4.0...4.2

Del. quantity cm³/ : 2.2...2.8

100 s : (1.8...3.2)

Spread cm³ : 1.0

100 s : (1.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.50...1.80

2nd speed rpm : 750

travel mm : 5.40...5.60

3rd speed rpm : 900

travel mm : 7.60...7.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 940

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 188.0...191.0

1000 : (184.5...194.5)

Spread cm³ : 6.00

1000 : (10.00)

RATED SPEED

1st version

Control lever
position degrees: 61...69

Testing:

1st rack travel in: 7.50
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 970...1000
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack travel: 5.60
Speed rpm : 350
Rack travel in mm : 4.00...4.20

CONSTANT REGULATION

Speed rpm : 355...455

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 7.50
Speed rpm : 940...950

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 20,9 z
Edition : 16.05.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 840 108
Injection pump
Pump designation : PE12P110A520/4LS849
EP type number : 0 411 810 041
Governor
Governor design. : RQV250...1050PA889
Governor no. : 0 421 813 696

Customer-spec. information
Customer : MAN

Engine : D2842ME

1st version kW : 305.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

A13

Firing order : 12- 1- 5- 9- 8- 3-
4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
180-225-240-285-300-
345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 12.8...13.1

100 s: (12.6...13.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.5...6.7

Del. quantity cm³/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.90...1.30

2nd speed rpm : 800

travel mm : 5.30...5.70

3rd speed rpm : 1050

travel mm : 7.50...7.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 128.5...131.5

1000 : (126.0...134.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:
1st rack travel in: 10.30
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...151

Testing:
Speed rpm : 100
Minimum rack travel: 8.10
Speed rpm : 250
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
Speed rpm : 385...510

START CUT-OUT

Speed 1/min : 190 (210)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 1090...1100

Remarks:

:

APPLICATION
Rail car

BOSCH INJ. PUMP TEST SPECIFICATIONS

11- 10- 3- 6- 7- 12

Note remarks

Test sheet : KHD 19,2 b
Edition : 16.05.88
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 401 840 733

Injection pump
Pump designation : PE12P110A92GLS3173
EP type number : 0 411 810 708
Governor
Governor design. : RQ300/1200PA803
Governor no. : 0 421 801 350

Customer-spec. information
Customer : KHD

Engine : BF12L513C

1st version kW : 386.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 4- 9- 8- 5- 2-

Phasing : 0-15-60-75-120-135-
 180-195-240-255-300-
 315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 16.7...16.9

100 s : (16.4...17.2)

Spread cm³ : 0.5

100 s : (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...6.7

Del. quantity cm³/ : 1.5...2.1

100 s : (-)

Spread cm³ : 0.7

100 s : (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 167.0...169.0

1000 : (164.0...172.0)

Spread cm³ : 5.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.70

Speed rpm : 1245...1260

2nd rack travel in: 4.00

Speed rpm : 1290...1320

4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00
Speed rpm : 395...435

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...165.0

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

6-7-12

Note remarks

Test sheet : KHD 19,2 c
Edition : 6.11.86
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 840 755

Injection pump
Pump designation : PE12P110A920LS3173
EP type number : 0 411 810 708
Governor
Governor design. : RQV750PA823
Governor no. : 0 421 813 573

Customer-spec. information
Customer : KHD

Engine : BF12LS13C

1st version kW : 263.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1-4-9-8-5-2-11-10-3-

A17

Phasing : 0-15-60-75-120-135-
180-195-240-255-300-
315
Tolerance + - ° : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 15.6...15.8

100 s : (15.3...16.1)

Spread cm³ : 0.5

100 s : (0.8)

2nd speed rpm : 300

Rack travel in mm : 6.60...6.80

Del. quantity cm³/ : 1.5...2.1

100 s : (1.2...2.3)

Spread cm³ : 0.7

100 s : (1.0)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 156.0...158.0

1000 : (153.0...161.0)

Spread cm³ : 5.0

1000 : (8.0)

RATED SPEED

1st version

Control lever

position degrees: 24...32

Testing:

1st rack travel in: 11.00

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...787

4th rack travel in: 820

Speed rpm : 0.00...1.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION
Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 19,2 d
 Edition : 20.05.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 840 758
 Injection pump
 Pump designation : PE12P110A92OLS3185
 EP type number : 0 411 810 712
 Governor
 Governor design. : RQV425...900PA814
 Governor no. : 0 421 813 558

Customer-spec. information
 Customer : KHD

Engine : F12L513

1st version kW : 232.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-
 11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-
 180-195-240-255-300-
 315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 9.4...9.6

100 s: (9.1...9.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 425.0

Rack travel in mm : 7.3...7.5

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 425
 travel mm : 1.30...1.70

2nd speed rpm : 450
 travel mm : 2.10...2.70

3rd speed rpm : 550
 travel mm : 3.40...4.00

4th speed rpm : 950
 travel mm : 8.40...8.60

5th speed rpm : 1000
 travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 950

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 94.0...96.0

1000 : (91.0...99.0)

Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 9.40
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 980...1010
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 22...30

Testing:
Speed rpm : 100
Minimum rack travel: 8.80
Speed rpm : 425
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION
Speed rpm : 425...490

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.40...10.50
2nd speed rpm : 550
Rack travel in m: 10.70...10.80
3rd speed rpm : 675
Rack travel in m: 10.70...10.80
4th speed rpm : 750
Rack travel in m: 10.60...10.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 675
Del. quantity cm³/ : 96.0...100.0
 1000 s: (94.0...102.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 940...950

STARTING FUEL DELIVERY

A20

Speed rpm : 100
Del. quantity cm³/ : 135.0...165.0
 1000 s: (131.0...169.0)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 19,2 b1
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 840 762

Injection pump
Pump designation : PE12P110A920LS3173
EP type number : 0 411 810 708
Governor
Governor design. : RQ300/1150PAB94
Governor no. : 0 421 801 443

Customer-spec. information
Customer : KHD

Engine : BF12LS13

1st version kW : 353.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 4- 9- 8- 5- 2-

A21

11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-
180-195-240-255-300-
315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150
Rack travel in mm : 12.00...12.10
Del. quantity cm³/ : 14.9...15.1
100 s: (14.6...15.4)
Spread cm³ : 0.5
100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 6.5...6.7
Del. quantity cm³/ : 1.5...2.1
100 s: (-)
Spread cm³ : 0.7
100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Aneroid pressure h: 750
Del. quantity : 149.0...151.0
1000 : (146.0...154.0)
Spread cm³ : 5.00
1000 : (8.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 11.00
Speed rpm : 1195...1210
2nd rack travel in: 4.00

Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.6

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.50...6.70

Rack travel in mm : 2.00

Speed rpm : 400...440

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 12.00...12.10

2nd speed rpm : 700

Rack travel in m: 12.40...12.60

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 750

Rack travel mm : 12.40...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.60...10.80

2nd pressure hPa : 430

Rack travel in m: 11.70...11.80

3rd pressure hPa : 350

Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 450

Del. quantity cm³/ : 123.0...127.0

1000 s: (121.0...129.0)

BREAKAWAY

1st version

1mm rack travel less than

A22

full load rack tr: 11.00
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 135.0...165.0

1000 s: (131.0...169.0)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 13,8 a4
Edition : 01.09.88
Replaces : 7.83
Test oil : ISO-4113

Combination no. : 0 401 846 225

Injection pump
Pump designation : PE6P120A72ORS167
EP type number : 0 411 826 053
Governor
Governor design. : RQ225/1100PA118R
Governor no. : 0 421 801 027

Customer-spec. information
Customer : FIAT

Engine : 221 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 17.0...17.3

100 s: (16.7...17.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 7.5...7.7

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1175

travel mm : 7.50...7.70

2nd speed rpm : 1000

travel mm : 5.90...6.10

3rd speed rpm : 500

travel mm : 5.90...6.10

4th speed rpm : 300

travel mm : 2.80...3.40

5th speed rpm : 225

travel mm : 1.40...1.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 170.0...173.0

1000 : (167.0...176.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.10

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1190...1220

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 225

Rack travel in mm : 7.6

Testing:

Speed rpm : 100

Minimum rack travel: 9.10

Speed rpm : 225

Rack travel in mm : 7.50...7.70

Rack travel in mm : 2.00

Speed rpm : 365...405

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1145...1160

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 a
Edition : 05.08.88
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 401 846 460

Injection pump
Pump designation : PE6P120A32ORS436
EP type number : 0 411 826 118
Governor
Governor design. : RQ750PA595
Governor no. : 0 421 801 148

Customer-spec. information
Customer : RVI

Engine : MID (S) 062030

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

A25

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.00...10.10

Del. quantity cm³/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.80...6.00

Del. quantity cm³/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm³ : 0.8

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 9.00

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 776...789

4th rack travel in: 900

Speed rpm : 0.00...1.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 h
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 482
Injection pump
Pump designation : PE6P120A32ORS257
EP type number : 0 411 826 075
Governor
Governor design. : RQV250...1100PA680
Governor no. : 0 421 813 374

Customer-spec. information
Customer : ENASA

Engine : 96 T1 BX

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1080

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 21.5...21.7

100 s: (21.2...22.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.6...5.8

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 350
travel mm : 1.70...2.30

3rd speed rpm : 650
travel mm : 4.00...4.60

4th speed rpm : 1145
travel mm : 8.30...8.50

5th speed rpm : 1225
travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Aneroid pressure h: 900

Del. quantity : 215.0...217.0

1000 : (212.0...220.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:

1st rack travel in: 10.00
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 100
Minimum rack travel: 7.20
Speed rpm : 250
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 250...370

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1080
Rack travel in m: 11.00...11.10
2nd speed rpm : 650
Rack travel in m: 11.50...11.70
3rd speed rpm : 850
Rack travel in m: 11.20...11.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.30...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...10.10
2nd pressure hPa : 415
Rack travel in m: 11.00...11.10
3rd pressure hPa : 300
Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 650
Del.quantity cm³/ : 185.0...191.0
1000 s: (182.0...194.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 136.0...138.0
1000 s: (133.0...141.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,6 a
Edition : 08.06.88
Replaces : 29.4.88
Test oil : ISO-4113

Combination no. : 0 401 846 494

Injection pump
Pump designation : PE6P100A720RS473
EP type number : 0 411 806 196
Governor
Governor design. : RQ300/1100PA269-1
Governor no. : 0 421 801 237

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 355

1st version kW : 177.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.1...8.3

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 2.30...2.60

2nd speed rpm : 600
travel mm : 6.90...7.10

3rd speed rpm : 1150
travel mm : 7.30...7.70

4th speed rpm : 1200
travel mm : 10.00...10.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.40...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 125.0...127.0

1000 : (123.0...129.0)

Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 13.6

Testing:

1st rack travel in: 11.70
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300
Rack travel in mm : 6.1

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 6.00...6.30
Rack travel in mm : 2.00
Speed rpm : 350...390

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del. quantity cm3/ : 115.0...119.0
 1000 s: (112.5...121.5)
Spread cm3 : 5.00
 1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 150.0...170.0
 1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6 y2
 Edition : 01.07.88
 Replaces : 10.85
 Test oil : ISO-4113
 Combination no. : 0 401 846 511
 Injection pump
 Pump designation : PE6P120A32ORS415-1
 EP type number : 0 411 826 123
 Governor
 Governor design. : RQ250/1000PA417-4
 Governor no. : 0 421 801 287

Customer-spec. information
 Customer : DAF

Engine : DKZ 1160

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.50

Speed rpm : 1035...1050

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.5

Testing:

Speed rpm : 100

Minimum rack travel: 7.40

Speed rpm : 250

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 450...490

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.70...12.80

2nd speed rpm : 990

Rack travel in m: 12.60...12.80

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 700

Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 340

Rack travel in m: 11.80...11.90

3rd pressure hPa : 280

Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600

Del.quantity cm3/ : 140.0...142.0

1000 s: (137.0...145.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 1035...1050

STARTING FUEL DELIVERY

B03

Speed rpm : 100

Del.quantity cm3/ : 305.0...345.0

1000 s: (305.0...345.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.40...6.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 b 1
 Edition : 05.08.88
 Replaces : 28.11.86
 Test oil : ISO-4113
 Combination no. : 0 401 846 515
 Injection pump
 Pump designation : PE6P110A32ORS494
 EP type number : 0 411 816 162
 Governor
 Governor design. : RQV300...1100PA435-1
 Governor no. : 0 421 813 496

Customer-spec. information
 Customer : VOLVO

Engine : TD 71G

1st version kW : 147.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

 Rack travel in mm : 11.90...12.00

 Del. quantity cm³/ : 12.2...12.4

 100 s: (11.9...12.7)

 Spread cm³ : 0.4

 100 s: (0.8)

2nd speed rpm : 300.0
 Rack travel in mm : 4.3...4.5
 Del. quantity cm³/ : 1.2...1.6
 100 s: (-)
 Spread cm³ : 0.3
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.40...1.50
 2nd speed rpm : 420
 travel mm : 2.50...2.90
 3rd speed rpm : 800
 travel mm : 4.80...5.10
 4th speed rpm : 1150
 travel mm : 8.10...8.30
 5th speed rpm : 1220
 travel mm : 8.90...9.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1170
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1000
 Del. quantity : 122.0...124.0
 1000 : (119.0...127.0)

Spread cm3 : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 10.90
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 100
Minimum rack travel: 5.80
Speed rpm : 300
Rack travel in mm : 4.30...4.50

CONSTANT REGULATION

Speed rpm : 300...470

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.00
2nd pressure hPa : 510
Rack travel in m: 11.70...11.80
3rd pressure hPa : 290
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm3/ : 87.0...89.0
1000 s: (84.0...92.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 150.0...190.0
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.30...4.50
Del. quantity cm3/ : 12.0...16.0
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 a 5
 Edition : 2.9.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 531
 Injection pump
 Pump designation : PE6P110A32ORS483-5
 EP type number : 0 411 816 171
 Governor
 Governor design. : RQV250...1200PA499-4
 Governor no. : 0 412 813 576

Customer-spec. information
 Customer : VOLVO

Engine : TD71FC

1st version kW : 153.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.40...12.50
 Del. quantity cm³/ : 12.9...13.1
 100 s : (12.6...13.4)
 Spread cm³ : 0.4
 100 s : (0.75)

2nd speed rpm : 250
 Rack travel in mm : 5.30...5.50
 Del. quantity cm³/ : 1.6...2.0
 100 s : (-)
 Spread cm³ : 0.3
 100 s : (6.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.30
 2nd speed rpm : 380
 travel mm : 2.30...2.60
 3rd speed rpm : 500
 travel mm : 2.90...3.30
 4th speed rpm : 1260
 travel mm : 7.70...7.90
 5th speed rpm : 1400
 travel mm : 9.00...9.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1330
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h : 900
 Del. quantity : 129.0...131.0
 1000 : (126.0...134.0)
 Spread cm³ : 4.0
 1000 : (7.5)

RATED SPEED

1st version
Control lever
position degrees: 54...62

Testing:
1st rack travel in: 11.40
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:
Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 250
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 250...480

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.40...12.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 560
Rack travel in m: 12.10...12.20
3rd pressure hPa : 300
Rack travel in m: ?

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 72.0...75.0
1000 s: (69.0...78.0)
Spread cm³ : -
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...200.0
1000 s: (-)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.30...5.50
Del. quantity cm³/ : 16.0...20.0
1000 s: (-)
Spread cm³ : 3.0
1000 s: (6.0)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 v3
Edition : 12.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 866
Injection pump
Pump designation : PE6P110A32ORS3080
EP type number : 0 411 816 722
Governor
Governor design. : RQV250...850PA657-9
Governor no. : 0 421 813 566

Customer-spec. information
Customer : VOLVO

Engine : TD102FG0

1st version kW : 205.0
Rated speed : 1700

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.70...13.80

Del. quantity cm³/ : 18.5...18.7

100 s : (18.2...19.0)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del. quantity cm³/ : 1.5...1.9

100 s : (1.2...2.1)

Spread cm³ : 0.3

100 s : (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 350
travel mm : 2.20...2.80

3rd speed rpm : 700
travel mm : 6.40...6.60

4th speed rpm : 850
travel mm : 6.70...6.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 935

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h : 900

Del. quantity : 185.0...187.0

1000 : (182.0...190.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 12.70

Speed rpm : 890...900

2nd rack travel in: 4.00

Speed rpm : 955...985

4th rack travel in: 1100

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 3...11

Testing:

Speed rpm : 100

Minimum rack travel: 5.40

Speed rpm : 250

Rack travel in mm : 3.80...4.00

Rack travel in mm : 2.00

Speed rpm : 285...345

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 900

Rack travel mm : 13.70...13.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.80...11.00

2nd pressure hPa : 530

Rack travel in m: 13.50...13.60

3rd pressure hPa : 120

Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 700

Del. quantity cm³/ : 132.0...135.0

1000 s: (129.5...137.5)

BREAKAWAY

1st version

B09

1mm rack travel less than

full load rack tr: 12.70

Speed rpm : 890...900

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 160.0...190.0

1000 s: (160.0...190.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 3.80...4.00

Del. quantity cm³/ : 15.0...19.0

1000 s: (12.5...21.5)

Spread cm³ : 3.00

1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.

Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 v4
 Edition : 12.08.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 867
 Injection pump
 Pump designation : PE6P110A320RS3080
 EP type number : 0 411 816 722
 Governor
 Governor design. : RQV250...1050PA657-24
 Governor no. : 0 421 813 674
 Customer-spec. information
 Customer : VOLVO

Engine : TD102FCQ

1st version kW : 220.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.70...13.80

Del.quantity cm3/ : 18.5...18.7

100 s: (18.2...19.0)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 550

travel mm : 4.90...5.50

3rd speed rpm : 700

travel mm : 6.40...6.60

4th speed rpm : 1050

travel mm : 7.20...7.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 185.0...187.0

1000 : (182.0...190.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:

1st rack travel in: 12.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 4...12

Testing:

Speed rpm : 100
Minimum rack travel: 5.40
Speed rpm : 250
Rack travel in mm : 3.80...4.00
Rack travel in mm : 2.00
Speed rpm : 300...360

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.70...13.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 610
Rack travel in m: 13.50...13.60
3rd pressure hPa : 120
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 119.0...122.0
1000 s: (116.5...124.5)

BREAKAWAY

1st version

B11

1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...190.0
1000 s: (160.0...190.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 6,1 Q
 Edition : 01.09.88
 Replaces : 5.6.87
 Test oil : ISO-4113
 Combination no. : 0 401 876 327
 Injection pump
 Pump designation : PE6P110A32ORS499
 EP type number : 0 411 816 169
 Governor
 Governor design. : RSV325...1400P2A374-3
 Governor no. : 0 421 833 220

Customer-spec. information
 Customer : VOLVO-PENTA

Engine : TAMD61A

1st version kW : 220.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.80...10.90

Del. quantity cm³/ : 11.4...11.6

100 s: (11.1...11.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 325.0

Rack travel in mm : 4.1...4.3

Del. quantity cm³/ : 1.1...1.5

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 900

Del. quantity : 114.0...116.0

1000 : (111.0...119.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 9.80

Speed rpm : 1420...1430

2nd rack travel in: 4.00
Speed rpm : 1455...1485
4th rack travel in: 1620
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 3.7
Speed rpm : 325
Rack travel in mm : 4.10...4.30
Rack travel in mm : 2.00
Speed rpm : 380...440

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 11.10...11.20
2nd speed rpm : 600
Rack travel in m: 11.10...11.40
3rd speed rpm : 375
Rack travel in m: 11.60...11.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.80...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.10...8.30
2nd pressure hPa : 550
Rack travel in m: 10.50...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1400
Del.quantity cm3/ : 116.0...122.0
1000 s: (115.0...125.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 48.0...52.0
1000 s: (45.0...55.0)

BREAKAWAY

1st version

B13

1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1420...1430

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...165.0

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.10...4.30
Del.quantity cm3/ : 11.0...15.0
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

APPLICATION
Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 d2
Edition : 19.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 076 034

Injection pump
Pump designation : PES6P110A720RS296
Governor
Governor design. : RSV400...900P0/429DR

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x3,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2,75...2,85
 : (2,70...2,90)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,5 (0,75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10,60

Del. quantity cm³/ : 12,2...12,6

100 s: (-)

Spread cm³ : 0,4

100 s: (-)

2nd speed rpm : 400

Rack travel in mm : 6,00

Del. quantity cm³/ : 1,9...2,3

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 600

Del. quantity : 123.0...125.0

1000 : (-)

Spread cm³ : 4.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 9,60

Speed rpm : 950

2nd rack travel in: 6,40

Speed rpm : 1000

LOW IDLE 1

Control lever

position degrees: 22...30

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6,70

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 400
Rack travel in mm : 6,00
Rack travel in mm : 2,00
Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10,60
2nd speed rpm : 650
Rack travel in m: 11,30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 600
Speed rpm : 650
Del.quantity cm3/ : 1327.0...143.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm3/ : 137.0...143.0
1000 s: (-)
Spread cm3 : 0,6
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 9,60
Speed rpm : 945...955

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1000
Del.quantity cm3/ : 47,0...57,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 19,0...23,0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 18,2 d
Edition : 01.07.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 649 802
Injection pump
Pump designation : PE10P120A52OLS7811
EP type number : 0 412 629 802
Governor
Governor design. : RQV250...1150PA860
Governor no. : 0 421 813 626

Customer-spec. information
Customer : MAN

Engine : D 2840 LX

1st version kW : 603.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.90...5.00
: (4.85...5.05)
Rack travel in mm : 9.00...12.00
Firing order : 10- 9- 4- 1- 8- 7
: - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
216-261-288-333
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.30...13.40

Del. quantity cm³/ : 28.4...28.6

100 s: (28.1...28.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 500.0
Rack travel in mm : 8.7...8.9
Del. quantity cm³/ : 14.1...14.7
100 s: (13.8...15.0)
Spread cm³ : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40
2nd speed rpm : 750
travel mm : 5.90...6.50
3rd speed rpm : 1150
travel mm : 8.40...8.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Aneroid pressure h: 1300
Del. quantity : 284.0...286.0
1000 : (281.0...289.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

1st rack travel in: 12.30
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1345...1375
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack travel: 8.90
Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 410...470

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1300
Rack travel mm : 13.30...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 270
Rack travel in m: 9.20...9.30
3rd pressure hPa : 790
Rack travel in m: 11.30...11.70

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...120.0**
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 500 *
Rack travel in mm : 7.20...7.40
Del.quantity cm3/ : <0

2nd version
Speed rpm : 500**
Rack travel in mm : 8.00...8.20
Del.quantity cm3/ : 10.0...130.0
1000 s: (-)

LOW IDLE

Speed rpm : 250**
Rack travel in mm : 7.30...7.50
Del.quantity cm3/ : 52.0...60.0
1000 s: (-)

Remarks:

* applies to cylinders 1, 2, 3, 7 and 9
** applies for cylinders 4, 5, 6, 8 and 10

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 K 2
Edition : 13.06.88
Replaces : 25.03.88
Test oil : ISO-4113

Combination no. : 0 403 446 122

Injection pump
Pump designation : PES6MW100/32ORS1016
EP type number : 0 413 406 010
Governor
Governor design. : RQV300...1400MW25-1
Governor no. : 0 420 083 039

Customer-spec. information
Customer : RVI

Engine : MIDR06.02-12

1st version kW : 125.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 173...176

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 9.1...9.3

100 s : (8.9...9.5)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.20...6.30

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.6)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475

travel mm : 8.50...8.90

2nd speed rpm : 1350

travel mm : 7.60...7.80

3rd speed rpm : 500

travel mm : 3.00...3.40

4th speed rpm : 300

travel mm : 1.10...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1400

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Aneroid pressure h : 500

Del. quantity : 91.5...93.5

1000 : (89.5...95.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:

1st rack travel in: 10.10
Speed rpm : 1455...1465
2nd rack travel in: 4.00
Speed rpm : 1575...1605
4th rack travel in: 1700
Speed rpm : 1.00...0.00

LOW IDLE 1

Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9
Speed rpm : 300
Rack travel in mm : 5.90...5.80
Rack travel in mm : 2.00
Speed rpm : 490...550
Speed rpm : 200
Maximum rack travel: 7.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 500
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...9.70
2nd pressure hPa : 200
Rack travel in m: 10.30...10.20
3rd pressure hPa : 230
Rack travel in m: 10.90...10.70

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 500
Speed rpm : 900
Del. quantity cm³/ : 87.5...91.5
1000 s: (85.5...93.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del. quantity cm³/ : 56.0...58.0
1000 s: (53.5...60.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1455...1465

STARTING FUEL DELIVERY

Del. quantity cm³/ : 94.0...104.0
1000 s: (91.0...107.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.20
Del. quantity cm³/ : 9.5...13.5
1000 s: (7.0...16.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Start-of-delivery mark is 8° after
start of delivery with control-rod
travel = 10.5 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 11
 Edition : 01.07.88
 Replaces : 24.06.88
 Test oil : ISO-4113
 Combination no. : 0 403 446 145
 Injection pump
 Pump designation : PES6MM100/72ORS1114-
 1
 EP type number : 0 413 406 111
 Governor
 Governor design. : RQV300...1300MW48
 Governor no. : 0 420 083 066

Customer-spec. information
 Customer : DB

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 7.7...7.9

100 s: (7.5...3.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...7.9

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 10.00
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1520
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.8

Testing:
Speed rpm : 100
Minimum rack travel: 9.40
Speed rpm : 300
Rack travel in mm : 7.80...7.90
Rack travel in mm : 2.00
Speed rpm : 500...560

CONSTANT REGULATION
Speed rpm : 330...600

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.00...11.10
2nd speed rpm : 700
Rack travel in m: 12.10...12.20
3rd speed rpm : 720
Rack travel in m: 12.10...12.20
4th speed rpm : 800
Rack travel in m: 11.80...12.00
5th speed rpm : 900
Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del. quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...7.90
Del. quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 9
Edition : 16.05.88
Replaces : 04.86
Test oil : ISO-4113

Combination no. : 0 403 446 158

Injection pump
Pump designation : PES6MW100/72ORS1131
EP type number : 0 413 406 123
Governor
Governor design. : RGV300...1300MW50-1
Governor no. : 0 420 083 089

Customer-spec. information
Customer : DB

Engine : OM 366 LA

1st version kW : 150.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 9.5...9.7

100 s : (9.3...9.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.2

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...10.20

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.60...2.80

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 95.0...97.0

1000 : (93.0...99.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 11.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.10...6.20

CONSTANT REGULATION
Speed rpm : 350...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.50...10.60

Measurement
Speed 1/min : 500

1st pressure hPa : 170
Rack travel in m: 10.80...10.90
2nd pressure hPa : 225
Rack travel in m: 11.70...12.00
3rd pressure hPa : 700
Rack travel in m: 12.10...12.20

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm3/ : 80.0...83.0
1000 s: (77.5...85.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 50.5...52.5
1000 s: (48.5...54.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.10...6.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

RATED SPEED

1st version

Control lever

position degrees: 43...48

Testing:

1st rack travel in: 10.50

Speed rpm : 1260...1280

2nd rack travel in: 4.00

Speed rpm : 1375...1385

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 7...15

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 5.9

Testing:

Speed rpm : 100

Minimum rack travel: 9.00

Speed rpm : 350

Rack travel in mm : 5.90...6.00

CONSTANT REGULATION

Speed rpm : 370...450

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 800

Rack travel in m: 11.80...11.90

2nd speed rpm : 1200

Rack travel in m: 11.50...11.60

3rd speed rpm : 1050

Rack travel in m: 11.60...11.80

4th speed rpm : 1150

Rack travel in m: 11.50...11.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 130

Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.70...10.80

2nd pressure hPa : 240

Rack travel in m: 11.40...11.70

3rd pressure hPa : 800

Rack travel in m: 11.80...11.90

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 1200

Del. quantity cm³/ : 107.0...111.0

1000 s: (105.0...113.0)

Spread cm³ : 6.50

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del. quantity cm³/ : 85.5...87.5

1000 s: (83.5...89.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

Speed rpm : 1260...1280

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.00

Del. quantity cm³/ : 18.0...22.0

1000 s: (15.5...24.5)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than $n = 500 \text{ 1/min}$

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R 7
 Edition : 06.04.88
 Replaces : 19.02.88
 Test oil : ISO-4113

Combination no. : 0 403 446 161

Injection pump
 Pump designation : PES6MW100/320RS1134
 EP type number : 0 413 406 125
 Governor
 Governor design. : RQV350...1200MW46-1
 Governor no. : 0 420 083 091

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466C

1st version kW : 172.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.80...12.90

Del. quantity cm3/ : 12.1...12.3

100 s : (11.9...12.5)

Spread cm3 : 0.3

100 s : (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 6.5...6.6
 Del. quantity cm3/ : 1.8...2.2
 100 s : (1.5...2.4)
 Spread cm3 : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
 travel mm : 8.80...9.20
 2nd speed rpm : 1250
 travel mm : 7.90...8.10
 3rd speed rpm : 500
 travel mm : 2.60...3.20
 4th speed rpm : 350
 travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1380
 Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 800
 Aneroid pressure h: 800
 Del. quantity : 121.5...123.5
 1000 : (119.5...125.5)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...50

Testing:

1st rack travel in: 11.80

Speed rpm : 1250...1260

2nd rack travel in: 4.00

Speed rpm : 1395...1405

4th rack travel in: 1460

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 9...17

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.5

Testing:

Speed rpm : 100

Minimum rack travel: 9.00

Speed rpm : 350

Rack travel in mm : 6.50...6.60

CONSTANT REGULATION

Speed rpm : 370...500

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 240

Rack travel mm : 10.40...10.50

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.80...9.90

2nd pressure hPa : 520

Rack travel in m: 11.90...12.20

3rd pressure hPa : 800

Rack travel in m: 12.80...12.90

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

B28

Speed rpm : 1200

Del.quantity cm3/ : 124.5...128.5

1000 s: (122.5...130.5)

Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 65.5...67.5

1000 s: (63.5...69.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.50...6.60

Del.quantity cm3/ : 18.0...22.0

1000 s: (15.5...24.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R 6
Edition : 06.04.88
Replaces : 11.85
Test oil : ISO-4113

Combination no. : 0 403 446 162

Injection pump
Pump designation : PES6MW100/32ORS1134
EP type number : 0 413 406 125
Governor
Governor design. : RQV350...1200MW46-2
Governor no. : 0 420 083 092

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466C

1st version kW : 156.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 10.6...10.8

100 s: (10.4...11.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.5

Del. quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
travel mm : 8.80...9.20

2nd speed rpm : 1250
travel mm : 7.90...8.10

3rd speed rpm : 500
travel mm : 2.60...3.20

4th speed rpm : 350
travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1355

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del. quantity : 106.0...108.0

1000 : (104.0...110.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...51

Testing:

1st rack travel in: 11.20
Speed rpm : 1270...1290
2nd rack travel in: 4.00
Speed rpm : 1390...1400
4th rack travel in: 1460
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

Speed rpm : 370...500

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 240
Rack travel mm : 10.50...10.60

Measurement

Speed 1/min : 500

1st pressure hPa : 800
Rack travel in m: 12.20...12.30
2nd pressure hPa : -
Rack travel in m: 10.00...10.10
3rd pressure hPa : 450
Rack travel in m: 11.60...11.90

START CUT-OUT

Speed 1/min : 220 (210)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800

Speed rpm : 1200
Del.quantity cm3/ : 110.5...114.5
1000 s: (108.5...116.5)
Spread cm3 : 6.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 67.5...69.5
1000 s: (65.5...71.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.50
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R
Edition : 06.04.88
Replaces : 11.85
Test oil : ISO-4113

Combination no. : 0 403 446 163

Injection pump
Pump designation : PES6MW100/320RS1112
EP type number : 0 413 406 108
Governor
Governor design. : RQV350...1200MW46-3
Governor no. : 0 420 083 093

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466C

1st version kW : 179.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.40...12.50

Del. quantity cm3/ : 11.9...12.1

100 s: (11.6...12.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.3

Del. quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.80...9.20

2nd speed rpm : 1250

travel mm : 7.90...8.10

3rd speed rpm : 500

travel mm : 2.60...3.20

4th speed rpm : 350

travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1355

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 900

Del. quantity : 119.0...121.0

1000 : (116.5...123.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 47...52

Testing:
1st rack travel in: 11.40
Speed rpm : 1250...1270
2nd rack travel in: 4.00
Speed rpm : 1375...1385
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.2

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.20...6.30

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 220
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : ~
Rack travel in m: 10.70...10.80
2nd pressure hPa : 440
Rack travel in m: 11.90...12.20
3rd pressure hPa : 900
Rack travel in m: 12.40...12.50

START CUT-OUT

Speed 1/min : 220 (210)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900

C06

Speed rpm : 1200
Del.quantity cm³/ : 121.5...125.5
1000 s: (119.5...127.5)
Spread cm³ : 6.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 86.5...88.5
1000 s: (84.5...90.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1250...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.30
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 K 5
Edition : 13.06.88
Replaces : 25.03.88
Test oil : ISO-4113

Combination no. : 0 403 446 165

Injection pump
Pump designation : PES6MW100/32ORS1016
EP type number : 0 413 406 010
Governor
Governor design. : RQV300...1300MW25-5
Governor no. : 0 420 083 095

Customer-spec. information
Customer : RVI

Engine : MIDR06.02-12 F

1st version kW : 125.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 173...176

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

C08

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 8.9...9.1

100 s : (8.7...9.3)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 5.70...5.80
Del. quantity cm³/ : 0.9...1.3
100 s : (0.7...1.6)
Spread cm³ : 0.3
100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475
travel mm : 8.50...8.90
2nd speed rpm : 1350
travel mm : 7.60...7.80
3rd speed rpm : 500
travel mm : 3.00...3.40
4th speed rpm : 300
travel mm : 1.10...1.70

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1300
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1300
Aneroid pressure h : 665
Del. quantity : 89.5...91.5
1000 : (87.5...93.5)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:
1st rack travel in: 10.10
Speed rpm : 1370...1380
2nd rack travel in: 4.00
Speed rpm : 1495...1525
4th rack travel in: 1650
Speed rpm : 0.00...0.10

LOW IDLE 1
Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.80
Speed rpm : 300
Rack travel in mm : 5.80...5.90
Speed rpm : 200
Maximum rack trave: 3.60

CONSTANT REGULATION
Speed rpm : 340...600

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 665
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...9.90
2nd pressure hPa : 200
Rack travel in m: 10.20...10.30
3rd pressure hPa : 230
Rack travel in m: 10.80...10.90

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 665
Speed rpm : 900
Del.quantity cm3/ : 86.5...90.5
1000 s: (84.5...92.5)
Spread cm3 : 5.00
1000 s: (7.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 56.0...58.0
1000 s: (54.0...60.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 95.0...105.0
1000 s: (92.0...108.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.70...5.80
Del.quantity cm3/ : 9.5...13.5
1000 s: (7.0...16.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark is at 8° after
start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 N 8
 Edition : 12.08.88
 Replaces : 02.11.87
 Test oil : ISO-4113
 Combination no. : 0 403 446 166
 Injection pump
 Pump designation : PES6MW100/720RS1133
 EP type number : 0 413 406 126
 Governor
 Governor design. : RQ325...1325MW65
 Governor no. : 0 420 082 018

Customer-spec. information
 Customer : KHD

Engine : BF 6L 913 BW

1st version kW : 124.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

C10

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1325

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 10.2...10.4

100 s : (10.0...10.6)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.0...7.1

Del. quantity cm³/ : 1.1...1.5

100 s : (0.9...1.7)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460
 travel mm : 8.60...9.20

2nd speed rpm : 1380
 travel mm : 6.50...6.70

3rd speed rpm : 425
 travel mm : 4.00...4.40

4th speed rpm : 300
 travel mm : 2.00...2.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 700

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1325

Aneroid pressure h: 700

Del. quantity : 102.0...104.0

1000 : (100.0...106.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 26...34

Setting point:
Speed rpm : 700
Rack travel in mm : 20.0

Testing:
1st rack travel in: 10.10
Speed rpm : 1370...1380
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.10...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.0

Testing:
Speed rpm : 100
Minimum rack trave: 8.60
Speed rpm : 300
Rack travel in mm : 7.00...7.10

CONSTANT REGULATION
Speed rpm : 340...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 450
Rack travel mm : 10.50...10.60

Measurement
Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 11.10...11.20
2nd pressure hPa : -
Rack travel in m: 9.40...9.50
3rd pressure hPa : 350
Rack travel in m: 9.90...10.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 850
Del. quantity cm³/ : 94.0...98.0
1000 s: (92.0...100.0)

Spread cm³ : 3.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 56.0...58.0
1000 s: (54.0...60.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...140.0
1000 s: (117.0...143.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.00...7.10
Del. quantity cm³/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R 8
Edition : 06.04.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 171
Injection pump
Pump designation : PES6MW100/32ORS1112
EP type number : 0 413 406 108
Governor
Governor design. : RGV350...1300MW46-4
Governor no. : 0 420 083 104

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 145.5
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 9.8...10.0

100 s : (9.6...10.2)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.0

Del. quantity cm³/ : 1.6...2.0

100 s : (1.3...2.2)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
travel mm : 8.30...8.50

2nd speed rpm : 1460
travel mm : 9.10...9.50

3rd speed rpm : 550
travel mm : 3.10...3.70

4th speed rpm : 350
travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1355

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h : 700

Del. quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...51

Testing:

1st rack travel in: 10.00
Speed rpm : 1345...1365
2nd rack travel in: 4.00
Speed rpm : 1460...1470
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.00

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 9.90...10.00

Measurement

Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 11.00...11.10
2nd pressure hPa : -
Rack travel in m: 9.60...9.70
3rd pressure hPa : 370
Rack travel in m: 10.50...10.80

START CUT-OUT

Speed 1/min : 220 (210)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700

Speed rpm : 1300
Del.quantity cm3/ : 99.0...103.0
1000 s: (97.0...105.0)
Spread cm3 : 6.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 66.0...68.0
1000 s: (64.0...70.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1345...1365

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.00
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R 9
Edition : 06.04.88
Replaces : 12.09.87
Test oil : ISO-4113

Combination no. : 0 403 446 172

Injection pump
Pump designation : PES6MW100/320RS1134
EP type number : 0 413 406 125
Governor
Governor design. : RQV350...1300MW46-5
Governor no. : 0 420 083 105

Customer-spec. information
Customer : NAVISTAR

Engine : DTI-466C

1st version kW : 156.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 10.8...11.0

100 s: (10.6...11.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.6...6.7

Del. quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.10...8.50

2nd speed rpm : 1470

travel mm : 8.90...9.90

3rd speed rpm : 800

travel mm : 4.50...5.30

4th speed rpm : 350

travel mm : 1.60...2.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1510

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del. quantity : 108.5...110.5

1000 : (106.5...112.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...51

Testing:

1st rack travel in: 11.20
Speed rpm : 1345...1365
2nd rack travel in: 4.00
Speed rpm : 1495...1505
4th rack travel in: 1575
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.6

Testing:

Speed rpm : 100
Minimum rack travel: 9.10
Speed rpm : 350
Rack travel in mm : 6.60...6.70

CONSTANT REGULATION

Speed rpm : 360...540

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 280
Rack travel mm : 10.10...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.50
2nd pressure hPa : 620
Rack travel in m: 11.50...11.80
3rd pressure hPa : 900
Rack travel in m: 12.20...12.30

START CUT-OUT

Speed 1/min : 220 (210)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900

Speed rpm : 1300
Del.quantity cm3/ : 111.0...115.0
1000 s: (109.0...117.0)
Spread cm3 : 6.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 55.0...57.0
1000 s: (53.0...59.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1345...1365

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.60...6.70
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R10
Edition : 06.04.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 446 173

Injection pump
Pump designation : PES6MW100/320RS1134
EP type number : 0 413 406 125
Governor
Governor design. : RQV350...1300MW46-6
Governor no. : 0 420 083 106

Customer-spec. information
Customer : NAVISTAR

Engine : DTI-466 C

1st version kW : 145.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.15
 : (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.60...11.70

Del. quantity cm³/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.6...6.7

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1470

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1355

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 800

Del. quantity : 94.5...96.5

1000 : (92.5...98.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...60

Testing:

1st rack travel in: 10.60

Speed rpm : 1360...1380

2nd rack travel in: 4.00

Speed rpm : 1485...1495

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.6

Testing:

Speed rpm : 100

Minimum rack travel: 9.00

Speed rpm : 350

Rack travel in mm : 6.60...6.70

CONSTANT REGULATION

Speed rpm : 360...540

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 250

Rack travel mm : 9.90...10.00

Measurement

Speed 1/min : 500

1st pressure hPa : 800

Rack travel in m: 11.60...11.70

2nd pressure hPa : -

Rack travel in m: 9.40...9.50

3rd pressure hPa : 540

Rack travel in m: 11.00...11.30

START CUT-OUT

Speed 1/min : 220 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 1300

Del.quantity cm3/ : 100.0...104.0

1000 s: (98.0...106.0)

Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 52.5...54.5

1000 s: (50.5...56.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1360...1380

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.60...6.70

Del.quantity cm3/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R 8
 Edition : 06.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 175
 Injection pump
 Pump designation : PES6MW100/320RS1134
 EP type number : 0 413 406 125
 Governor
 Governor design. : RQV350...1200MW46-8
 Governor no. : 0 420 083 108

Customer-spec. information
 Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 134.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 9.1...9.3

100 s : (8.9...9.5)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.5

Del. quantity cm³/ : 1.6...2.0

100 s : (1.3...2.2)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250
 travel mm : 7.80...8.00

2nd speed rpm : 1340
 travel mm : 8.80...9.20

3rd speed rpm : 500
 travel mm : 2.60...3.20

4th speed rpm : 350
 travel mm : 1.30...1.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h : 800

Del. quantity : 91.0...93.0

1000 : (89.0...95.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 41...46

Testing:

1st rack travel in: 10.40
Speed rpm : 1230...1250
2nd rack travel in: 4.00
Speed rpm : 1350...1360
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

Speed rpm : 360...500

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 240
Rack travel mm : 10.40...10.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 470
Rack travel in m: 11.10...11.40
3rd pressure hPa : 800
Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 220 (210)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800

Speed rpm : 1200
Del.quantity cm3/ : 96.0...100.0
1000 s: (94.0...102.0)
Spread cm3 : 6.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 61.5...63.5
1000 s: (59.5...65.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1230...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.50
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R12
Edition : 06.04.88
Replaces : 19.02.88
Test oil : ISO-4113

Combination no. : 0 403 446 176

Injection pump
Pump designation : PES6MW100/32ORS1140
EP type number : 0 413 406 135
Governor
Governor design. : RQV350...1200MW72
Governor no. : 0 420 083 109

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 123.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.5

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 7.80...8.00

2nd speed rpm : 1340

travel mm : 8.80...9.20

3rd speed rpm : 500

travel mm : 2.60...3.20

4th speed rpm : 350

travel mm : 1.30...1.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 6.60...9.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del. quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...51

Testing:

1st rack travel in: 10.00

Speed rpm : 1240...1260

2nd rack travel in: 4.00

Speed rpm : 1350...1360

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.4

Testing:

Speed rpm : 100

Minimum rack travel: 9.00

Speed rpm : 350

Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

Speed rpm : 370...450

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1200

Del. quantity cm³/ : 89.0...93.0

1000 s: (87.0...95.0)

Spread cm³ : 6.50

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1240...1260

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

C25

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.40...6.50

Del. quantity cm³/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than $n = 500$ 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R13
 Edition : 06.04.88
 Replaces : 19.02.88
 Test oil : ISO-4113
 Combination no. : 0 403 446 181
 Injection pump
 Pump designation : PES6MW100/32ORS1134
 EP type number : 0 413 406 125
 Governor
 Governor design. : RQV350...1200MW46-9
 Governor no. : 0 420 083 116

Customer-spec. information
 Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 122.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.00...11.10

Del. quantity cm3/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.6...6.7

Del. quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250
 travel mm : 7.80...8.00

2nd speed rpm : 1340
 travel mm : 8.80...9.20

3rd speed rpm : 700
 travel mm : 4.20...4.80

4th speed rpm : 350
 travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1355

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1 : version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...51

Testing:

1st rack travel in: 10.00
Speed rpm : 1265...1285
2nd rack travel in: 4.00
Speed rpm : 1365...1375
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.6

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.60...6.70

CONSTANT REGULATION

Speed rpm : 360...540

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 210
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.10
2nd pressure hPa : 300
Rack travel in m: 10.60...10.90
3rd pressure hPa : 700
Rack travel in m: 11.00...11.10

START CUT-OUT

Speed 1/min : 220 (210)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700

C27

Speed rpm : 1200
Del.quantity cm3/ : 86.0...90.0
1000 s: (84.0...92.1)
Spread cm3 : 6.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 58.5...60.5
1000 s: (56.5...62.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1265...1285

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.60...6.70
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than $n = 500$ 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 34
Edition : 05.08.88
Replaces : 29.04.88
Test oil : ISO-4113

Combination no. : 0 403 446 184

Injection pump
Pump designation : PES6MW100/720RS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQV300...1300MW48-3
Governor no. : 0 420 083 121

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 125.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 19.00...21.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.90...11.00

Del. quantity cm³/ : 7.2...7.4

100 s : (7.0...7.6)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...7.9

Del. quantity cm³/ : 0.9...1.3

100 s : (0.6...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1340

travel mm : 8.50...8.70

2nd speed rpm : 1450

travel mm : 9.30...9.70

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 72.0...74.0

1000 : (70.0...76.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 9.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.8

Testing:

Speed rpm : 100
Minimum rack travel: 9.30
Speed rpm : 300
Rack travel in mm : 7.80...7.90

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.60...11.80
3rd speed rpm : 585
Rack travel in m: 11.80...12.00

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del. quantity cm³/ : 71.0...73.0
1000 s: (69.0...75.0)
Spread cm³ : 5.00
1000 s: (7.0)
Speed rpm : 585
Del. quantity cm³/ : 65.0...68.0
1000 s: (62.5...70.5)
Spread cm³ : 5.00
1000 s: (7.00)

BREAKAWAY

1st version

D02

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...7.90
Del. quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 21
 Edition : 16.05.88
 Replaces : 19.02.88
 Test oil : ISO-4113
 Combination no. : 0 403 446 187
 Injection pump
 Pump designation : PES6MW100/72ORS1129
 EP type number : 0 413 406 121
 Governor
 Governor design. : RGV300...1300MW50-2
 Governor no. : 0 420 083 124

Customer-spec. information
 Customer : DB

Engine : OM 366 LA

1st version kW : 150.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

D03

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.5...5.6

Del. quantity cm³/ : 0.9...1.1

100 s: (0.6...1.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1340

travel mm : 8.60...8.80

2nd speed rpm : 1430

travel mm : 9.30...9.70

3rd speed rpm : 300

travel mm : 1.20...1.60

4th speed rpm : 700

travel mm : 3.80...4.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:

1st rack travel in: 10.20
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.50...5.60

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

CONSTANT REGULATION

Speed rpm : 320...530

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 400
Rack travel mm : 9.90...10.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.60
2nd pressure hPa : 500
Rack travel in m: 10.80...11.10
3rd pressure hPa : 700
Rack travel in m: 11.20...11.30

START CUT-OUT

Speed 1/min : 220 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700

D04

Speed rpm : 600
Del.quantity cm3/ : 83.5...86.5
1000 s: (81.0...89.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 88.0...98.0
1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.50...5.60
Del.quantity cm3/ : 9.0...11.0
1000 s: (6.0...14.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 28
Edition : 19.08.88
Replaces : 01.07.88
Test oil : ISO-4113

Combination no. : 0 403 446 188

Injection pump
Pump designation : PES6MW100/72ORS1144
EP type number : 0 413 406 138
Governor
Governor design. : RGV300...1300MW48-4
Governor no. : 0 420 083 126

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 100.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 19.00...21.00

D05

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.10...10.20

Del. quantity cm3/ : 6.4...6.6

100 s: (6.2...6.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.3...7.4

Del. quantity cm3/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1340

travel mm : 8.50...8.70

2nd speed rpm : 1450

travel mm : 9.30...9.70

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 64.0...66.0

1000 : (62.0...68.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 9.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.3

Testing:

Speed rpm : 100
Minimum rack travel: 9.30
Speed rpm : 300
Rack travel in mm : 7.30...7.40

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300
Rack travel in m: 10.10...10.20
2nd speed rpm : 750
Rack travel in m: 11.10...11.20
3rd speed rpm : 600
Rack travel in m: 11.10...11.20
4th speed rpm : 1000
Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 61.5...64.5
1000 s: (59.0...67.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1340...1350

D06

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.30...7.40
Del. quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 Q
Edition : 16.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 446 190

Injection pump
Pump designation : PES6MW100/320RS1154
EP type number : 0 413 406 144
Governor
Governor design. : RQV275...1250MW80
Governor no. : 0 420 083 128

Customer-spec. information
Customer : RVI

Engine : MIDR 060226

1st version kW : 128.7
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 6.10...5.90

Del. quantity cm³/ : 1.8...2.2

100 s: (1.5...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475
travel mm : 9.20...9.60

2nd speed rpm : 1300
travel mm : 7.80...8.00

3rd speed rpm : 500
travel mm : 3.00...3.60

4th speed rpm : 275
travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 800

Del. quantity : 99.5...101.5

1000 : (97.5...103.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 12.00
Speed rpm : 1330...1350
2nd rack travel in: 4.00
Speed rpm : 1490...1530
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 7.0

Testing:
Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 275
Rack travel in mm : 6.10...5.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.00...10.90

Measurement
Speed 1/min : 500

1st pressure hPa : 170
Rack travel in mm: 11.60...11.50
2nd pressure hPa : 360
Rack travel in mm: 12.50...12.40
3rd pressure hPa : 800
Rack travel in mm: 12.90...13.00

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 700
Del. quantity cm³/ : 90.0...94.0
1000 s: (88.0...96.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del. quantity cm³/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1330...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 83.0...97.0
1000 s: (80.0...100.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.10...5.90
Del. quantity cm³/ : 18.0...22.0
1000 s: (15.0...22.0)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R22
Edition : 19.08.88
Replaces : 19.02.88
Test oil : ISO-4113

Combination no. : 0 403 446 192

Injection pump
Pump designation : PES6MW100/32ORS1112
EP type number : 0 413 406 108
Governor
Governor design. : RQV350...1300MW72-2
Governor no. : 0 420 083 141

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466

1st version kW : 136.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.00...10.10

Del. quantity cm3/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.5

Del. quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
travel mm : 8.30...8.50

2nd speed rpm : 1460
travel mm : 9.10...9.50

3rd speed rpm : 550
travel mm : 3.10...3.70

4th speed rpm : 350
travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1510

Rack travel in mm : 6.60...9.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 45...50

Testing:

1st rack travel in: 9.00
Speed rpm : 1360...1380
2nd rack travel in: 4.00
Speed rpm : 1460...1470
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

Speed rpm : 300...450

START CUT-OUT

Speed 1/min : 220 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1300
Del. quantity cm³/ : 88.0...92.0
1000 s: (86.0...94.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00
Speed rpm : 1360...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.50
Del. quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R20
 Edition : 05.08.88
 Replaces : 16.02.88
 Test oil : ISO-4113

Combination no. : 0 403 446 194

Injection pump
 Pump designation : PES6MW100/32ORS1112
 EP type number : 0 413 406 108
 Governor
 Governor design. : RGV350...1300MW46-12
 Governor no. : 0 420 083 143

Customer-spec. information
 Customer : NAVISTAR

Engine : DT-466

1st version kW : 154.5
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.80...10.90

Del. quantity cm3/ : 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.6

Del. quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1510

Rack travel in mm : 6.60...9.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 800

Del. quantity : 103.0...105.0

1000 : (101.0...107.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...49

Testing:

1st rack travel in: 9.80
Speed rpm : 1365...1385
2nd rack travel in: 4.00
Speed rpm : 1470...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.30
Speed rpm : 350
Rack travel in mm : 5.50...5.60

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 170
Rack travel mm : 10.40...10.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 230
Rack travel in m: 10.60...10.90
3rd pressure hPa : 800
Rack travel in m: 10.80...10.90

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800

Speed rpm : 1300
Del.quantity cm3/ : 105.0...109.0
1000 s: (103.0...111.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 87.0...89.0
1000 s: (85.0...91.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1365...1385

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.60
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : OMB 8,1 E
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 446 203

Injection pump
Pump designation : PES6MW100/720RS1163
EP type number : 0 413 406 152
Governor
Governor design. : RGV300...1100MW19
Governor no. : 0 420 083 014

Cust. part no. : 4843739

Customer-spec. information
Customer : IVECO-OM

Engine : 836S.25.500

1st version kW : 132.4
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 2.90...3.00
: (2.85...3.05)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.70...13.80

Del. quantity cm³/ : 9.6...9.8

100 s : (9.4...10.0)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.1

Del. quantity cm³/ : 1.1...1.5

100 s : (0.9...1.8)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1220
travel mm : 9.60...10.00

2nd speed rpm : 1140
travel mm : 8.70...8.90

3rd speed rpm : 500
travel mm : 2.70...3.30

4th speed rpm : 300
travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h : 500

Del. quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...53

Testing:

1st rack travel in: 12.70

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1235...1265

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 12...20

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 8.0

Testing:

Speed rpm : 100

Minimum rack travel: 9.50

Speed rpm : 300

Rack travel in mm : 8.00...8.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 13.70...13.80

2nd speed rpm : 700

Rack travel in m: 14.60...14.70

3rd speed rpm : 850

Rack travel in m: 14.30...14.50

4th speed rpm : 1000

Rack travel in m: 13.70...13.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 270

Rack travel mm : 14.10...14.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 13.30...13.40

2nd pressure hPa : 200

Rack travel in m: 13.50...13.80

3rd pressure hPa : 500

Rack travel in m: 14.60...14.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 500

Speed rpm : 700

Del. quantity cm³/ : 101.0...105.0

1000 s: (99.0...107.0)

Spread cm³ : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del. quantity cm³/ : 75.0...77.0

1000 s: (73.0...79.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 160.0...170.0

1000 s: (157.0...173.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300

Rack travel in mm : 8.00...8.10

Del. quantity cm³/ : 11.5...15.5

1000 s: (9.0...18.0)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

Test electrically-released starting quantity (EES) with 12 volts

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 40
Edition : 12.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 207
Injection pump
Pump designation : PES6MW100/72ORS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQ300/1300MW96
Governor no. : 0 420 082 032

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 125.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 7.9...8.1

100 s: (7.7...8.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...7.6

Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1425

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 7.80...8.00

3rd speed rpm : 525

travel mm : 4.90...5.50

4th speed rpm : 300

travel mm : 2.10...2.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 1200

Rack travel in mm : 12.70...14.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 79.0...81.0

1000 : (77.0...83.0)

Spread cm³ : 3.50

RATED SPEED

1st version

Control lever
position degrees: 34...42

Setting point:

Speed rpm : 1200
Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.20
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.5

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 7.40...7.60

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.20...11.30
2nd speed rpm : 900
Rack travel in m: 11.90...12.10
3rd speed rpm : 600
Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm3/ : 77.0...80.0
1000 s: (74.5...82.5)
Spread cm3 : 5.00
1000 s: (7.0)
Speed rpm : 600
Del.quantity cm3/ : 70.0...73.0
1000 s: (67.5...75.5)
Spread cm3 : 5.00
1000 s: (7.00)

RACK STOP ADJUSTMENT

Speed rpm : 550

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.40...7.60
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 L 1
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 456 101

Injection pump
Pump designation : PES6MW100/321RS1153
EP type number : 0 413 406 145
Governor
Governor design. : RQ250/1300MW84
Governor no. : 0 420 082 029

Customer-spec. information
Customer : MAN

Engine : D 0826 LF

1st version kW : 165.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 13.2...13.4

100 s : (13.0...13.6)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 4.5...4.7

Del. quantity cm³/ : 1.2...1.6

100 s : (0.9...1.8)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1440
travel mm : 8.70...9.10

2nd speed rpm : 1350
travel mm : 6.30...6.50

3rd speed rpm : 350
travel mm : 4.00...4.60

4th speed rpm : 250
travel mm : 2.10...2.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 1000

Del. quantity : 132.0...134.0

1000 : (130.0...136.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 26...34

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.90

Speed rpm : 1345...1360

2nd rack travel in: 4.00

Speed rpm : 1425...1455

4th rack travel in: 1530

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 4.6

Testing:

Speed rpm : 100

Minimum rack travel: 7.00

Speed rpm : 250

Rack travel in mm : 4.50...4.70

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 180

Rack travel mm : 9.50...9.60

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.20...9.30

2nd pressure hPa : 390

Rack travel in m: 10.90...11.20

3rd pressure hPa : 1000

Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 800

Del.quantity cm3/ : 128.0...131.0

1000 s: (125.5...133.5)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 74.5...76.5

1000 s: (72.5...78.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...150.0

1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 4.50...4.70

Del.quantity cm3/ : 12.0...16.0

1000 s: (9.5...18.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 L
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 456 102
Injection pump
Pump designation : PES6MW100/321RS1153
EP type number : 0 413 406 145
Governor
Governor design. : RQV250...1300MW83
Governor no. : 0 420 083 139

Customer-spec. information
Customer : MAN

Engine : D 0826 LF

1st version kW : 165.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 13.2...13.4

100 s : (13.0...13.6)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 4.7...4.9

Del. quantity cm³/ : 1.2...1.6

100 s : (0.9...1.8)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...9.80

2nd speed rpm : 1350

travel mm : 8.40...8.60

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 250

travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1320

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 1000

Del. quantity : 132.0...134.0

1000 : (130.0...136.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 10.90
Speed rpm : 1345...1360
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.8

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 250
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 330...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 180
Rack travel mm : 9.50...9.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.30
2nd pressure hPa : 390
Rack travel in m: 10.90...11.20
3rd pressure hPa : 1000
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 170 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 800

Del.quantity cm³/ : 128.0...131.0
1000 s: (125.5...133.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.5...76.5
1000 s: (72.5...78.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.70...4.90
Del.quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C
 Edition : 06.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 466 101
 Injection pump
 Pump designation : PES6MW100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV400...1250MW2A319
 Governor no. : 0 420 085 059

Customer-spec. information
 Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 188.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

 Rack travel in mm : 14.00...14.10

 Del.quantity cm3/ : 14.4...14.6

 100 s: (14.2...14.8)

 Spread cm3 : 0.3

 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 7.9...8.0
 Del.quantity cm3/ : 1.9...2.3
 100 s: (1.6...2.5)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 144.5...146.5
 1000 : (142.5...148.5)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 50...58

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.00
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1380...1410
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 7.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 7.90...8.00

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 133.5...137.5
1000 s: (131.5...139.5)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 7.90...8.00
Del. quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

D23

:

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C 1
 Edition : 06.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 466 102
 Injection pump
 Pump designation : PES6MW100/12ORS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV425...1050MW2A319
 -1
 Governor no. : 0 420 085 061

Customer-spec. information
 Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 178.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 14.00...14.10

Del. quantity cm3/ : 13.8...14.0

100 s: (13.6...14.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 7.7...7.8

Del. quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 138.0...140.0

1000 : (136.0...142.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 34...42

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.00
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1150...1180
3rd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1250
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 7.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 7.70...7.80

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 14.00...14.10
2nd speed rpm : 750
Rack travel in m: 14.40...14.50
3rd speed rpm : 900
Rack travel in m: 14.10...14.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 138.5...140.5
1000 s: (136.5...142.5)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 7.70...7.80
Del. quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1
Starting/full-load transition speed
from holding magnet = 500 1/min.

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C 3
Edition : 06.04.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 466 104

Injection pump
Pump designation : PES6MW100/12QRS1137
EP type number : 0 413 406 131
Governor
Governor design. : RSV400...1050MW2A319
-3
Governor no. : 0 420 085 074

Customer-spec. information
Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 165.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.9...7.0

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 124.0...126.0

1000 : (122.0...128.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.90...7.00

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 14.20...14.30
3rd speed rpm : 900
Rack travel in m: 13.30...13.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 151.0...153.0
1000 s: (149.0...155.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 11.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.90...7.00
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1
Starting/full-load transition speed
from holding magnet = 500 1/min.

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 6,2 F
Edition : 25.03.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 466 108
Injection pump
Pump designation : PES6MW100/320/3RS116
2
EP type number : 0 413 406 149
Governor
Governor design. : RSV325...1200MWA326
Governor no. : 0 420 085 085

Customer-spec. information
Customer : MWM

Engine : TD 226 B-6

1st version kW : 136.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 11.6...11.8

100 s: (11.4...12.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 6.6...6.7

Del. quantity cm³/ : 0.8...1.2

100 s: (0.6...1.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: 3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 700

Del. quantity : 116.5...118.5

1000 : (114.5...120.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.40

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1260...1300
4th rack travel in: 1380
Speed rpm : 0.30...1.70
5th rack travel in: 1295...1325
Speed rpm : 4.00

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 325
Rack travel in mm : 6.60...6.70

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.40...10.50
2nd speed rpm : 800
Rack travel in m: 10.60...10.70
3rd speed rpm : 500
Rack travel in m: 10.70...10.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.50...8.60

Measurement

Speed 1/min : 500

1st pressure hPa : 270
Rack travel in m: 9.10...9.20
2nd pressure hPa : 450
Rack travel in m: 9.90...10.20
3rd pressure hPa : 700
Rack travel in m: 10.60...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 800
Del. quantity cm³/ : 113.5...116.5
1000 s: (110.5...118.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm³/ : 62.5...64.5
1000 s: (60.5...66.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.60...6.70
Del. quantity cm³/ : 8.0...12.0
1000 s: (6.0...14.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Test electrically-released starting
quantity (EES) with 12 volts

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 H
 Edition : 16.05.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 466 109
 Injection pump
 Pump designation : PES6MW100/120RS1137-
 1
 EP type number : 0 413 406 157
 Governor
 Governor design. : RSV400...1100MW2A319
 -4
 Governor no. : 0 420 085 080

Customer-spec. information
 Customer : CUMMINS/US

Engine : 6 CTA-8.3
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 9 410 270 183

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750
 Rack travel in mm : 14.00...14.10
 Del. quantity cm³/ : 15.0...15.2
 100 s : (14.8...15.4)
 Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 7.0...7.1
 Del. quantity cm³/ : 1.6...2.0
 100 s : (1.3...2.2)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Del. quantity : 150.5...152.5
 1000 : (148.5...154.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 40...48

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.90
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 7.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 7.00...7.10

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 14.00...14.10
2nd speed rpm : 1100
Rack travel in m: 12.30...12.50
3rd speed rpm : 950
Rack travel in m: 13.60...14.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100
Del. quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

E03

Speed rpm : 400
Rack travel in mm : 7.00...7.10
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

Adjust stop lever to 0.5...1.0 mm
before stop.

Set 11.9...12.0 mm control-rod travel
at lower full-load stop with
n = 1000 1/min.

Make full-load setting at upper full-
load stop in accordance with test
specifications.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 A 28
 Edition : 12.08.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 474 002
 Injection pump
 Pump designation : PES4MW100/72ORS1127
 EP type number : 0 413 404 103
 Governor
 Governor design. : RSV350...1200MMOA330
 Governor no. : 0 420 085 101

Customer-spec. information
 Customer : DB

Engine : OM364A

1st version kW : 66.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

EO4

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 7.1...7.3

100 s : (6.9...7.5)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.1...7.2

Del. quantity cm³/ : 0.7...0.9

100 s : (0.4...1.2)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 71.0...73.0

1000 : (69.0...75.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.30

Speed rpm : 1240...1245

2nd rack travel in: 4.00
Speed rpm : 1283...1296
3rd rack travel in: 4.00
Speed rpm : 1320...1350
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 10.30

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 7.10...7.20
Rack travel in mm : 2.00
Speed rpm : 415...475

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 11.30...11.40
2nd speed rpm : 600
Rack travel in m: 12.10...12.20
3rd speed rpm : 900
Rack travel in m: 11.70...11.80
4th speed rpm : 950
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del. quantity cm³/ : 58.0...60.0
1000 s: (56.0...62.0)
Speed rpm : 900
Del. quantity cm³/ : 73.0...75.0
1000 s: (71.0...77.0)
Spread cm³ : 5.00
1000 s: (7.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.10...7.20
Del. quantity cm³/ : 7.0...9.0
1000 s: (4.0...12.0)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 A 24
 Edition : 11.07.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 474 005
 Injection pump
 Pump designation : PES4MW100/72ORS1127
 EP type number : 0 413 404 103
 Governor
 Governor design. : RSV350...750MWOA318-4
 Governor no. : 0 420 085 089

Customer-spec. information
 Customer : DB

Engine : OM364A

1st version kW : 63.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 9.1...9.3

100 s : (8.9...9.5)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.5...7.7

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 91.0...93.0

1000 : (89.0...95.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.40

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...793

4th rack travel in: 950

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 11...19

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7.5

Speed rpm : 350

Rack travel in mm : 7.50...7.60

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.50...7.70

Del.quantity cm³/ : 9.0...13.0

1000 s: (7.0...15.0)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

:

When setting the governor, the
throttle screw of damper 1 must be
open 1 turn.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R 5
Edition : 06.04.88
Replaces : 19.02.88
Test oil : ISO-4113

Combination no. : 0 403 476 024

Injection pump
Pump designation : PES6MW100/32ORS1121
EP type number : 0 413 406 115
Governor
Governor design. : RSV450...1200MW2A313
-1
Governor no. : 0 420 085 040

Customer-spec. information
Customer : NAVISTAR

Engine : DTI-466C

1st version kW : 175.2
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 12.2...12.4

100 s: (12.0...12.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.7...5.8

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 900

Del.quantity : 122.0...124.0

1000 : (120.0...126.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...50

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.90
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.80

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200
Rack travel in m: 11.90...12.00
2nd speed rpm : 1150
Rack travel in m: 11.90...12.00
3rd speed rpm : 800
Rack travel in m: 12.30...12.40
4th speed rpm : 600
Rack travel in m: 12.30...12.50

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 500

1st pressure hPa : 260
Rack travel in m: 11.10...11.20
2nd pressure hPa : 540
Rack travel in m: 11.90...12.00
3rd pressure hPa : -
Rack travel in m: 10.70...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1200

E09

Del.quantity cm3/ : 118.0...120.0
1000 s: (116.0...122.0)
Spread cm3 : 6.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 91.0...93.0
1000 s: (89.0...95.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.80
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

Start-of-delivery mark: stop lever
25° toward shutoff; control-rod
travel = 9...12 mm. (Free travel of
stop lever must have been overcome
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Check hydraulic latching of starting fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R 3
Edition : 06.04.88
Replaces : 19.02.88
Test oil : ISO-4113

Combination no. : 0 403 476 025

Injection pump
Pump designation : PES6MW100/32ORS1121
EP type number : 0 413 406 115
Governor
Governor design. : RSV450...1200MW2A313
-2
Governor no. : 0 420 085 041

Customer-spec. information
Customer : NAVISTAR

Engine : DTI-466C

1st version kW : 156.6
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 172...175

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.60...10.70

Del. quantity cm³/ : 10.8...11.0

100 s : (10.6...11.2)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 4.8...4.9

Del. quantity cm³/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h : 900

Del. quantity : 108.5...110.5

1000 : (106.5...112.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...54

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 8.90
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1355...1365
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 4.80...4.90

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200
Rack travel in m: 9.90...10.00
2nd speed rpm : 850
Rack travel in m: 10.60...10.70
3rd speed rpm : 800
Rack travel in m: 10.30...10.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : 320
Rack travel in m: 9.30...9.40
2nd pressure hPa : 570
Rack travel in m: 10.20...10.30
3rd pressure hPa : -
Rack travel in m: 9.00...9.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1200
Del. quantity cm³/ : 102.5...104.5
1000 s: (116.0...122.0)

Spread cm³ : 6.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 78.0...80.0
1000 s: (76.0...82.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 4.80...4.90
Del. quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

Start-of-delivery mark: stop lever
25° toward shutoff: control-rod
travel = 9...12 mm. (Free travel of
stop lever must have been overcome
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Check hydraulic latching of starting fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R 2
Edition : 06.04.88
Replaces : 19.02.88
Test oil : ISO-4113

Combination no. : 0 403 476 026

Injection pump
Pump designation : PES6MW100/32ORS1122
EP type number : 0 413 406 116
Governor
Governor design. : RSV350...1050MW2/312
-4
Governor no. : 0 420 085 042

Customer-spec. information
Customer : NAVISTAR

Engine : DT 466

1st version kW : 118.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del. quantity cm3/ : 10.2...10.4

100 s: (10.0...10.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.3

Del. quantity cm3/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 102.0...104.0

1000 : (100.0...106.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 38...44

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.10

Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1165
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 15...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.30

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 11.90...12.00
2nd speed rpm : 700
Rack travel in m: 13.00...13.10
3rd speed rpm : 600
Rack travel in m: 13.30...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del. quantity cm³/ : 91.0...93.0
1000 s: (88.0...96.0)
Spread cm³ : 6.50
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

E15

Speed rpm : 350
Rack travel in mm : 6.20...6.30
Del. quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

Start-of-delivery mark: stop lever
25° toward shutoff: control-rod
travel = 9...12 mm. (Free travel of
stop lever must have been overcome
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

Check hydraulic latching of starting
fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make
contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 50
 Edition : 05.08.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 027
 Injection pump
 Pump designation : PES6MW100/72ORS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1300MWOA316
 -6
 Governor no. : 0 420 085 098

Customer-spec. information
 Customer : DB

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 7.2...7.4

100 s: (7.0...7.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.6

Del. quantity cm³/ : 0.9...1.1

100 s: (0.7...1.3)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 72.0...74.0

1000 : (70.0...76.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.70

Speed rpm : 1340...1345
2nd rack travel in: 4.00
Speed rpm : 1377...1390
3rd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1345...1360
Speed rpm : 9.70

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7.3

Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 350

Rack travel in mm : 7.00...7.60

Rack travel in mm : 2.00

Speed rpm : 445...505

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 10.70...10.80

2nd speed rpm : 700

Rack travel in m: 12.30...12.40

3rd speed rpm : 825

Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del. quantity cm³/ : 69.0...71.0

1000 s: (67.0...73.0)

Spread cm³ : 5.00

1000 s: (7.0)

Speed rpm : 825

Del. quantity cm³/ : 73.0...75.0

1000 s: (71.0...77.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.00...7.60

Del. quantity cm³/ : 9.0...11.0

1000 s: (7.0...13.0)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 P 4
 Edition : 06.04.88
 Replaces : 19.02.88
 Test oil : ISO-4113
 Combination no. : 0 403 476 030
 Injection pump
 Pump designation : PES6MW100/32ORS1109
 EP type number : 0 413 406 104
 Governor
 Governor design. : RSV350...1250MW2/313
 -3
 Governor no. : 0 420 085 049

Customer-spec. information
 Customer : NAVISTAR

Engine : DTI-466 C

1st version kW : 160,0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 13.40...13.50

Del.quantity cm3/ : 11.6...11.8

100 s : (11.4...12.0)

Spread cm3 : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.4

Del.quantity cm3/ : 1.8...2.3

100 s : (1.6...2.5)

Spread cm3 : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 900

Del.quantity : 116.5...118.5

1000 : (114.5...120.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 52...57

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.20
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1390...1400
4th rack travel in: 1470
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.30...6.40

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 800
Rack travel in m: 13.40...13.50
2nd speed rpm : 1250
Rack travel in m: 12.20...12.30
3rd speed rpm : 840
Rack travel in m: 13.40...13.50
4th speed rpm : 1200
Rack travel in m: 12.20...12.30

Aneroid/Altitude

Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.40...11.50
2nd pressure hPa : 200
Rack travel in m: 11.80...11.90
3rd pressure hPa : 490
Rack travel in m: 12.70...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

E19

Aneroid pressure h: 900
Speed rpm : 1250
Del.quantity cm3/ : 105.0...107.0
1000 s: (103.0...109.0)
Spread cm3 : 6.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 82.0...84.0
1000 s: (79.0...87.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.40
Del.quantity cm3/ : 18.0...23.0
1000 s: (16.5...25.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

Start-of-delivery mark: stop lever
25° toward shutoff; control-rod
travel = 9...12 mm. (Free travel of
stop lever must have been overcome
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Check hydraulic latching of starting fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R 4
Edition : 06.04.88
Replaces : 19.02.88
Test oil : ISO-4113

Combination no. : 0 403 476 047

Injection pump
Pump designation : PES6MW100/32ORS1121
EP type number : 0 413 406 115
Governor
Governor design. : RSV500...1250MW2/312
-5
Governor no. : 0 420 085 058

Customer-spec. information
Customer : NAVISTAR

Engine : DTI-466C

1st version kW : 167.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 10.8...11.0

100 s: (10.6...11.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 5.4...5.5

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del.quantity : 108.0...110.0

1000 : (106.0...112.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...55

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.30

Speed rpm : 1315...1325
2nd rack travel in: 4.00
Speed rpm : 1370...1380
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 5.40...5.50

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1250
Del. quantity cm³/ : 110.5...114.5
1000 s: (108.5...116.5)
Spread cm³ : 6.50
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1315...1325

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.40...5.50
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

Start-of-delivery mark: stop lever
25° toward shutoff: control-rod
travel = 9...12 mm. (Free travel of
stop lever must have been overcome
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

Check hydraulic latching of starting
fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make
contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R16
Edition : 06.04.88
Replaces : 24.08.87
Test oil : ISO-4113

Combination no. : 0 403 476 050

Injection pump
Pump designation : PES6MW100/32ORS1121
EP type number : 0 413 406 115
Governor
Governor design. : RSV500...1250MW2A312
-6
Governor no. : 0 420 085 063

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 160.3
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 11.80...11.90

Del. quantity cm³/ : 10.8...11.0

100 s: (10.6...11.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 6.2...6.3

Del. quantity cm³/ : 1.8...2.2

100 s: (1.3...2.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del. quantity : 108.0...110.0

1000 : (106.0...112.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...54

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.60

Speed rpm : 1295...1305
2nd rack travel in: 4.00
Speed rpm : 1365...1375
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 6.20...6.30

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1250
Del. quantity cm³/ : 107.0...111.0
1000 s: (105.0...113.0)
Spread cm³ : 6.50
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1295...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1365
Del. quantity cm³/ : 15.0...23.0
1000 s: (14.0...24.0)

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.20...6.30

E24

Del. quantity cm³/ : 18.0...22.0
1000 s: (13.5...26.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

Start-of-delivery mark: stop lever
25° toward shutoff: control-rod
travel = 9...12 mm. (Free travel of
stop lever must have been overcome
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

Position idle auxiliary spring to make
contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R19
Edition : 06.04.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 476 051
Injection pump
Pump designation : PES6MW100/320RS1121
EP type number : 0 413 406 115
Governor
Governor design. : RSV350...1200MW2A321
Governor no. : 0 420 085 064

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 93.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 9.50...9.60

Del.quantity cm3/ : 6.8...7.0

100 s: (6.6...7.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.6

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del.quantity : 68.0...70.0

1000 : (66.0...72.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 54...59

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 7.60

Speed rpm : 1240...1260

2nd rack travel in: 4.00
Speed rpm : 1295...1305
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.50...6.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 800
Rack travel in m: 9.50...9.60
2nd speed rpm : 1200
Rack travel in m: 8.60...8.70
3rd speed rpm : 1150
Rack travel in m: 8.80...8.90
4th speed rpm : 1050
Rack travel in m: 9.00...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1200
Del. quantity cm³/ : 59.5...61.5
1000 s: (56.5...64.0)
Spread cm³ : 6.50
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 7.60
Speed rpm : 1240...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1305

Del. quantity cm³/ : 12.0...20.0
1000 s: (11.0...20.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.50...6.60
Del. quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

Start-of-delivery mark: stop lever
25° toward shutoff: control-rod
travel = 9...12 mm. (Free travel of
stop lever must have been overcome
beforehand.)

Set shutoff stop 1.5...2.0 mm before
shutoff.

Position idle auxiliary spring to make
contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R18
Edition : 06.04.88
Replaces : 19.02.88
Test oil : ISO-4113

Combination no. : 0 403 476 053

Injection pump
Pump designation : PES6MW100/320RS1121
EP type number : 0 413 406 115
Governor
Governor design. : RSV350...1050MW2A321
-2
Governor no. : 0 420 085 066

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 129.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0.5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.70...11.80

Del. quantity cm3/ : 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.3

Del. quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 16.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 105.5...107.5

1000 : (103.5...109.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...45

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.70
Speed rpm : 1090...1110
2nd rack travel in: 4.00
Speed rpm : 1155...1165
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.30

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 700
Rack travel in m: 11.70...11.80
2nd speed rpm : 1050
Rack travel in m: 10.70...10.80
3rd speed rpm : 1000
Rack travel in m: 10.70...10.90
4th speed rpm : 900
Rack travel in m: 11.00...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del. quantity cm³/ : 94.5...96.5
1000 s: (91.0...100.0)
Spread cm³ : 6.50
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1090...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1155
Del. quantity cm³/ : 12.0...20.0
1000 s: (11.0...21.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.30
Del. quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:
Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

Start-of-delivery mark: stop lever
25° toward shutoff: control-rod
travel = 9...12 mm. (Free travel of
stop lever must have been overcome
beforehand.)

Set shutoff stop 1.5...2.0 mm before
shutoff.

Position idle auxiliary spring to make
contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 43
Edition : 05.08.88
Replaces : 19.05.88
Test oil : ISO-4113

Combination no. : 0 403 476 054

Injection pump
Pump designation : PES6MW100/72ORS1144
EP type number : 0 413 406 138
Governor
Governor design. : RSV350...1200MWOA316
-7
Governor no. : 0 420 085 092

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 115.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.80...11.90

Del. quantity cm³/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.6

Del. quantity cm³/ : 0.9...1.1

100 s: (0.6...1.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 78.0...80.0

1000 : (76.0...82.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.80

Speed rpm : 1240...1245
2nd rack travel in: 4.00
Speed rpm : 1285...1298
3rd rack travel in: 4.00
Speed rpm : 1325...1355
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 10.80

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 7.00...7.60
Rack travel in mm : 2.00
Speed rpm : 445...505

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 11.80...11.90
2nd speed rpm : 750
Rack travel in m: 12.30...12.40
3rd speed rpm : 1000
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 72.0...74.0
1000 s: (70.0...76.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

F02

Speed rpm : 350
Rack travel in mm : 7.00...7.60
Del.quantity cm3/ : 9.0...11.0
1000 s: (6.0...14.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 46
Edition : 12.08.88
Replaces : 08.06.88
Test oil : ISO-4113
Combination no. : 0 403 476 055
Injection pump
Pump designation : PES6MW100/720RS1144
EP type number : 0 413 406 138
Governor
Governor design. : RSV350...1200MW1A316
-8
Governor no. : 0 420 085 097

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 92.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

F03

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 6.2...6.4

100 s: (6.0...6.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.9

Del.quantity cm3/ : 0.9...1.1

100 s: (0.6...1.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 15.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 62.0...64.0

1000 : (60.0...66.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 8.80

Speed rpm : 1235...1240
2nd rack travel in: 4.00
Speed rpm : 1260...1273
3rd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1245...1260
Speed rpm : 8.80

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350
Rack travel in mm : 6.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.30...6.90
Rack travel in mm : 2.00
Speed rpm : 415...475

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200
Rack travel in m: 9.80...9.90
2nd speed rpm : 800
Rack travel in m: 10.70...10.80
3rd speed rpm : 950
Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del. quantity cm³/ : 61.0...63.0
1000 s: (59.0...65.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80
Speed rpm : 1235...1240

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

F04

Speed rpm : 350
Rack travel in mm : 6.30...6.90
Del. quantity cm³/ : 9.0...11.0
1000 s: (6.0...14.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 37
 Edition : 19.05.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 056
 Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1200MWOA316
 -5
 Governor no. : 0 420 085 090

Customer-spec. information
 Customer : DB

Engine : OM366A

1st version kW : 100.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.20...10.30

Del. quantity cm³/ : 6.9...7.1

100 s: (6.7...7.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.1...6.7

Del. quantity cm³/ : 0.9...1.1

100 s: (0.6...1.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 69.0...71.0

1000 : (67.0...73.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.20

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1271...1284

3rd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 9.20

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.10...6.70
Rack travel in mm : 2.00
Speed rpm : 415...475

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.20...10.30
2nd speed rpm : 800
Rack travel in m: 11.10...11.20
3rd speed rpm : 900
Rack travel in m: 11.00...11.20
4th speed rpm : 1050
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 69.0...71.0
1000 s: (67.0...73.0)
Spread cm3 : 5.00
1000 s: (7.0)

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.10...6.70
Del.quantity cm3/ : 9.0...11.0
1000 s: (6.0...14.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

F06

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 6,5 E
Edition : 11.03.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 476 058
Injection pump
Pump designation : PES6MW100/72ORS1145
EP type number : 0 413 406 141
Governor
Governor design. : RSV300...1100MW1A323
Governor no. : 0 420 085 081

Customer-spec. information
Customer : STEYR

Engine : WD 612.96

1st version kW : 121.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

F07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.80...13.90

Del. quantity cm³/ : 11.0...11.2

100 s : (10.8...11.4)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 9.0...9.1

Del. quantity cm³/ : 1.2...1.6

100 s : (1.0...1.8)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 110.0...112.0

1000 : (108.0...114.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.80

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1205...1235

4th rack travel in: 1300

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 28...36

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 8.5

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 300

Rack travel in mm : 8.50...8.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/ : 103.0...107.0

1000 s: (101.0...109.0)

Spread cm3 : 5.00

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 110.0...130.0

1000 s: (107.0...109.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 12.0...16.0

1000 s: (10.0...18.0)

Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

:

Test electrically-released starting
quantity (EES) with 12 volts

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 38
 Edition : 05.08.88
 Replaces : 30.05.88
 Test oil : ISO-4113

Combination no. : 0 403 476 059

Injection pump
 Pump designation : PES6MW100/72ORS1130
 EP type number : 0 413 406 122
 Governor
 Governor design. : RSV575...1250MWOA325
 Governor no. : 0 420 085 083

Customer-spec. information
 Customer : DB

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

F09

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1230

Rack travel in mm : 10.90...11.00

Del. quantity cm³/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 575.0

Rack travel in mm : 5.6...5.7

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1230

Del. quantity : 78.0...80.0

1000 : (76.0...82.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.90

Speed rpm : 1270...1275

2nd rack travel in: 4.00

Speed rpm : 1295...1310

3rd rack travel in: 4.00

Speed rpm : 1301...1315
4th rack travel in: 1350
Speed rpm : 0.30...1.70
5th rack travel in: 1276...1280
Speed rpm : 9.90

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 575
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 575
Rack travel in mm : 5.60...5.70

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del. quantity cm3/ : 55.0...59.0
1000 s: (53.0...61.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1270...1275

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 575
Rack travel in mm : 5.60...5.70
Del. quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LEY 6,7 A
Edition : 25.03.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 546 016

Injection pump
Pump designation : PEGMW90/32ORS1152
EP type number : 0 413 596 101
Governor
Governor design. : RQV200...1300MW95
Governor no. : 0 420 083 150

Customer-spec. information
Customer : BRITISH-LEYLAND

Engine : 411

1st version KW : 119.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.30...3.40
: (3.25...3.45)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 9.70...9.80

Del. quantity cm³/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 200.0

Rack travel in mm : 6.5...6.6

Del. quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1340
travel mm : 10.20...10.40

2nd speed rpm : 1430
travel mm : 11.40...11.80

3rd speed rpm : 200
travel mm : 0.90...1.30

4th speed rpm : 500
travel mm : 3.40...4.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 86.5...88.5

1000 : (84.5...90.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 44...52

Testing:

1st rack travel in: 8.70
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1380...1410
4th rack travel in: 1480
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 200
Rack travel in mm : 6.50...6.60

CONSTANT REGULATION

Speed rpm : 270...350

START CUT-OUT

Speed 1/min : 150 (170)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 74.5...78.5
1000 s: (72.5...80.5)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...120.0
1000 s: (107.0...123.0)

LOW IDLE

Speed rpm : 200

F12

Rack travel in mm : 6.50...6.60
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4 D1
 Edition : 11.07.88
 Replaces : 25.03.88
 Test oil : ISO-4113
 Combination no. : 0 403 548 013
 Injection pump
 Pump designation : PE8MW100/720LS1117
 EP type number : 0 413 508 101
 Governor
 Governor design. : RQV425...900MW66
 Governor no. : 0 420 083 097

Customer-spec. information
 Customer : KHD

Engine : F 8L 513 OPT.

1st version kW : 153.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 12.50...12.60
 Del. quantity cm³/ : 10.7...10.9
 100 s: (10.5...11.1)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 7.4...7.5
 Del. quantity cm³/ : 1.3...1.7
 100 s: (1.1...2.0)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 940
 travel mm : 8.70...8.90
 2nd speed rpm : 990
 travel mm : 9.40...10.00
 3rd speed rpm : 550
 travel mm : 3.20...4.00
 4th speed rpm : 425
 travel mm : 1.40...2.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 900
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Del. quantity : 107.0...109.0
 1000 : (105.0...111.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:

1st rack travel in: 11.50
Speed rpm : 930...940
2nd rack travel in: 4.50
Speed rpm : 980...1010
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 7.4

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 425
Rack travel in mm : 7.40...7.50

CONSTANT REGULATION

Speed rpm : 450...750

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900
Rack travel in m: 12.50...12.60
2nd speed rpm : 675
Rack travel in m: 13.00...13.10
3rd speed rpm : 775
Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 675
Del. quantity cm³/ : 111.5...113.5
1000 s: (109.5...115.5)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 930...940

STARTING FUEL DELIVERY

Speed rpm : 100

F14

Del. quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 7.40...7.50
Del. quantity cm³/ : 13.0...17.0
1000 s: (11.0...20.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4 D7
 Edition : 11.03.88
 Replaces : 13.05.87
 Test oil : ISO-4113
 Combination no. : 0 403 548 020
 Injection pump
 Pump designation : PE8MW100/72QLS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQV300...1150MW56-1
 Governor no. : 0 420 083 125

Customer-spec. information
 Customer : KHD

Engine : BF 8L 513

1st version kW : 235.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

F15

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 12.80...12.90
 Del. quantity cm3/ : 14.1...14.3
 100 s: (13.9...14.5)
 Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.5...6.6
 Del. quantity cm3/ : 1.3...1.7
 100 s: (1.1...1.9)
 Spread cm3 : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280
 travel mm : 9.00...9.80
 2nd speed rpm : 1150
 travel mm : 6.60...6.80
 3rd speed rpm : 650
 travel mm : 5.80...6.20
 4th speed rpm : 300
 travel mm : 1.20...2.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1175
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 900
 Del. quantity : 141.0...143.0
 1000 : (139.0...145.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Setting point:
Speed rpm : 1175
Rack travel in mm : 16.5

Testing:
1st rack travel in: 11.80
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1370
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack trave: 8.10
Speed rpm : 300
Rack travel in mm : 6.50...6.60

CONSTANT REGULATION
Speed rpm : 320...400

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.80...12.90
2nd speed rpm : 700
Rack travel in m: 13.80...13.90
3rd speed rpm : 950
Rack travel in m: 13.10...13.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 480
Rack travel mm : 13.40...13.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.70...11.80
2nd pressure hPa : 330
Rack travel in m: 12.50...12.80
3rd pressure hPa : 900

F16

Rack travel in m: 13.80...13.90

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/ : 153.0...155.0
1000 s: (151.0...157.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm3/ : 107.0...109.0
1000 s: (105.0...111.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.50...6.60
Del.quantity cm3/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Test electrically-released starting
quantity (EES) with 12 volts

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4D10
Edition : 11.03.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 548 023
Injection pump
Pump designation : PE8MW100/72OLS1128
EP type number : 0 413 508 103
Governor
Governor design. : RQV300...1150MW56-3
Governor no. : 0 420 083 154

Customer-spec. information
Customer : KHD

Engine : BF 8L 513

1st version kW : 225.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.10...3.20
: (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
4- 3

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
Rack travel in mm : 12.60...12.70
Del. quantity cm³/ : 13.9...14.1
100 s : (13.7...14.3)
Spread cm³ : 0.3
100 s : (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 6.5...6.7
Del. quantity cm³/ : 1.3...1.7
100 s : (1.1...1.9)
Spread cm³ : 0.3
100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200
travel mm : 8.50...8.70
2nd speed rpm : 1290
travel mm : 9.60...10.00
3rd speed rpm : 600
travel mm : 4.10...4.30
4th speed rpm : 300
travel mm : 1.40...1.80

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1175
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Aneroid pressure h : 800
Del. quantity : 139.0...141.0
1000 : (137.0...143.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 11.60
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1380
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
Speed rpm : 310...420

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.60...12.70
2nd speed rpm : 650
Rack travel in m: 13.50...13.60
3rd speed rpm : 940
Rack travel in m: 13.00...13.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 480
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.70...11.80
2nd pressure hPa : 380
Rack travel in m: 12.20...12.50
3rd pressure hPa : 800
Rack travel in m: 13.50...13.60

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 650
Del.quantity cm3/ : 150.0...152.0
1000 s: (148.0...154.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm3/ : 107.0...109.0
1000 s: (105.0...111.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 x
Edition : 16.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 083 256
Injection pump
Pump designation : PES6A80C410RS2239Y
Governor
Governor design. : RQV300...1475AB762DL

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 352

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 686 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00X2,00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240
Tolerance + - ° : 0,5 (0,75)

F19

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/ : 4,35...4,85

100 s : (-)

Spread cm3 : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 15,00...15,10
Del.quantity cm3/ : 10,25...11,65
100 s : (-)

Spread cm3 : 0,4
100 s : (-)

3rd speed rpm : 200
Rack travel in mm : 6,00...6,10
Del.quantity cm3/ : 2,45...3,45
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1475
Rack travel in mm : 16,00...18,90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1450
Del.quantity : 45,5...47,5
1000 : (-)

Spread cm3 : 2,5
1000 : (4,0)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 20,00
Speed rpm : 1515...1525
2nd rack travel in: 5,10
Speed rpm : 1680...1720
4th rack travel in: 1800
Speed rpm : 0,00...3,00
5th rack travel in: 1850
Speed rpm : <0,00

LOW IDLE 1

Control lever
position degrees: 6...14

Remarks:

Testing:

Speed rpm : 100
Minimum rack trave: 8,00
Speed rpm : 250
Rack travel in mm : 5,40...7,00
Rack travel in mm : 2,00
Speed rpm : 565...635
Speed rpm : 770
Maximum rack trave: 0,01

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1450
Rack travel in m: <0,00
2nd speed rpm : 1200
Rack travel in m: 0,40...0,60
3rd speed rpm : 1000
Rack travel in m: 0,60...0,80
4th speed rpm : 800
Rack travel in m: 0,90...1,10
5th speed rpm : 500
Rack travel in m: 1,10...1,30

START CUT-OUT

Speed 1/min : 180...250

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000
Del.quantity cm3/ : 45,5...48,5
1000 s: (-)
Spread cm3 : 3,5
1000 s: (4,5)
Speed rpm : 800
Del.quantity cm3/ : 45,0...48,0
1000 s: (-)
Spread cm3 : 3,5
1000 s: (4,5)
Speed rpm : 500
Del.quantity cm3/ : 41,0...44,5
1000 s: (-)
Spread cm3 : 3,5
1000 s: (4,5)

BREAKAWAY

1st version

Speed rpm : 1475...1500

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 14,20...14,80

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 i14
 Edition : 16.08.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 084 258
 Injection pump
 Pump designation : PES6A80D41ORS2085Y
 Governor
 Governor design. : RSV350...1300A2B713D
 L

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 352

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2,15...2,25
 : (2,10...2,30)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240
 Tolerance + - ° : 0,5 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del. quantity cm³/ : 4,55...4,85

100 s: (-)

Spread cm³ : 0,25

100 s: (0,40)

2nd speed rpm : 1000

Rack travel in mm : 15,00...15,10

Del. quantity cm³/ : 10,45...10,85

100 s: (-)

Spread cm³ : 0,25

100 s: (0,40)

3rd speed rpm : 200

Rack travel in mm : 9,00...9,10

Del. quantity cm³/ : 2,65...3,45

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1620

Rack travel in mm : 0,00...1,00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Del. quantity : 48,0...49,0

1000 : (46,5...50,5)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 7,90

Speed rpm : 1385...1415

2nd rack travel in: 3,70

Speed rpm : 1480...1520

5th rack travel in: 1620

Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7,50

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 350
Rack travel in mm : 7,30...7,70
Rack travel in mm : 2,50
Speed rpm : 620...680
Speed rpm : 780
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1280
Rack travel in m: <0,00
2nd speed rpm : 1000
Rack travel in m: 0,30...0,50
3rd speed rpm : 800
Rack travel in m: 0,70...0,90
4th speed rpm : 500
Rack travel in m: 0,80...1,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000
Del.quantity cm3/ : 46,5...48,5
1000 s: (44,5...50,5)
Speed rpm : 800
Del.quantity cm3/ : 45,5...47,5
1000 s: (43,5...49,5)
Speed rpm : 500
Del.quantity cm3/ : 42,5...44,5
1000 s: (40,5...46,5)

BREAKAWAY

1st version

Speed rpm : 1310...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 14,20...18,20

Remarks:

APPLICATION:

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MM 3,9 b4
Edition : 15.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 085 221

Injection pump
Pump designation : PES4A800320RS1282
Governor
Governor design. : RSV350...1500A2B2074
-1R

Customer-spec. information
Customer : MM

Engine : D 229-4

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 046

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2,20...2,30
: (2,15...2,35)

Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,5 (0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9,00...12,00
& maximum rack tra: 21,00
Difference ° CS : 4...5

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 9,10...9,20

Del. quantity cm³/ : 5,1...5,2

100 s: (5,0...5,4)

Spread cm³ : 0,25

100 s: (0,40)

2nd speed rpm : 350

Rack travel in mm : 6,90...7,10

Del. quantity cm³/ : 1,2...1,5

100 s: (1,1...1,7)

Spread cm³ : 0,20

100 s: (0,35)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...1,00

Governor spring pre-tension

Click setting x : 5,50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del. quantity : 51,5...52,5

1000 : (50,0...54,0)

Spread cm³ : 2,5

1000 : (4,0)

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testing:

1st rack travel in: 8,10

Speed rpm : 1540...1550

2nd rack travel in: 4,0

Speed rpm : 1590...1620

3rd rack travel in: 0,30...1,60

Speed rpm : 1750

LOW IDLE 1

Control lever

position degrees: 22...30

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6,45

Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 350

Rack travel in mm : 6,90...7,10

Rack travel in mm : 2,00

Speed rpm : 670...730

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1500

Rack travel in m: 9,10...9,20

2nd speed rpm : 500

Rack travel in m: 10,40...10,50

3rd speed rpm : 900

Rack travel in m: 10,00...10,20

4th speed rpm : 1100

Rack travel in m: 9,50...9,80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Del.quantity cm3/ : 51,0...53,0

1000 s: (49,0...55,0)

Speed rpm : 900

Del.quantity cm3/ : 53,0...55,0

1000 s: (51,0...57,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,10

Speed rpm : 1540...1550

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19,00...21,00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6,90...7,10

Del.quantity cm3/ : 12,5...15,5

1000 s: (11,0...17,0)

Spread cm3 : 2,0
1000 s: (3,5)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 2,9 b1
Edition : 15.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 085 223
Injection pump
Pump designation : PES3A80032ORS1281
Governor
Governor design. : RSV350...1400A2B2129
-3R

Customer-spec. information
Customer : MWM

Engine : D229-3

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 012

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00X2,00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2,20...2,30
: (2,15...2,35)

Rack travel in mm : 9,00...12,00

Firing order : 1-2-3

Phasing : 0-120-240
Tolerance + - ° : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,00
& maximum rack tra: 21,00
Difference ° CS : 4,0...5,0

BASIC SETTING

1st speed rpm : 1400
Rack travel in mm : 9,90...10,00
Del. quantity cm3/ : 5,4...5,5
100 s: (5,3...5,7)
Spread cm3 : 0,25
100 s: (0,40)

2nd speed rpm : 350
Rack travel in mm : 6,90...7,10
Del. quantity cm3/ : 0,6...0,9
100 s: (0,5...1,1)
Spread cm3 : 0,20
100 s: (0,35)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,3...1,0

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1400
Del. quantity : 45,5...55,5
1000 : (53,0...57,0)
Spread cm3 : 2,5
1000 : (4,0)

RATED SPEED

1st version
Control lever
position degrees: 54...62

Testing:
1st rack travel in: 8,90
Speed rpm : 1440...1450
2nd rack travel in: 4,00
Speed rpm : 1495...1525
3rd rack travel in: 0,30...1,70

Speed rpm : 1700

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6,50

Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 350

Rack travel in mm : 6,90...7,10

Rack travel in mm : 2,00

Speed rpm : 650...710

Speed rpm : 850

Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 9,90...10,00

2nd speed rpm : 1100

Rack travel in m: 10,20...10,50

3rd speed rpm : 700

Rack travel in m: 10,60...10,80

4th speed rpm : 500

Rack travel in m: 10,70...10,80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del.quantity cm3/ : 55,0...57,0

1000 s: (53,0...59,0)

Speed rpm : 700

Del.quantity cm3/ : 51,0...53,0

1000 s: (49,0...55,0)

Aneroid pressure h: 500

Del.quantity cm3/ : 48,5...50,0

1000 s: (46,5...52,5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,90

Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19,00

LOW IDLE

F26

Speed rpm : 350

Rack travel in mm : 6,90...7,10

Del.quantity cm3/ : 6,5...9,5

1000 s: (5,0...11,0)

Spread cm3 : 2,0

1000 s: (3,5)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 i4
Edition : 16.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 085 224
Injection pump
Pump designation : PES6A90D320RS2605
Governor
Governor design. : RSV350...1050A1B2029
-2R

Customer-spec. information
Customer : MWM

Engine : TD 229-6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 012

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2,20...2,30
: (2,15...2,35)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240
Tolerance + - ° : 0,5 (0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8,20
& maximum rack tra: 21,00
Difference ° CS : 4...5

BASIC SETTING

1st speed rpm : 1050
Rack travel in mm : 8,20...8,30
Del. quantity cm³/ : 5,3...5,4
100 s: (5,1...5,5)
Spread cm³ : 0,3
100 s: (0,5)

2nd speed rpm : 350
Rack travel in mm : 6,40...6,60
Del. quantity cm³/ : 0,7...1,1
100 s: (-)
Spread cm³ : 0,25
100 s: (0,45)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...1,00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del. quantity : 53,0...54,0
1000 : (51,5...55,5)
Spread cm³ : 3,0
1000 : (5,0)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:
1st rack travel in: 7,20
Speed rpm : 1070...1080
2nd rack travel in: 4,00
Speed rpm : 1090...1120
3rd rack travel in: 0,30...1,00
Speed rpm : 1250

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5,90...6,10

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 350
Rack travel in mm : 6,40...6,60
Rack travel in mm : 2,00
Speed rpm : 530...590
Speed rpm : 670
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 8,20...8,30
2nd speed rpm : 875
Rack travel in m: 8,40...8,70
3rd speed rpm : 700
Rack travel in m: 8,90...9,10
4th speed rpm : 500
Rack travel in m: 9,00...9,10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 51,5...53,5
1000 s: (49,0...56,0)
Speed rpm : 500
Del.quantity cm3/ : 46,0...50,0
1000 s: (43,5...50,5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7,20
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19,00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6,40...6,60
Del.quantity cm3/ : 7,50...11,50
1000 s: (-)

Spread cm3 : 2,5
1000 s: (4,5)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 j
Edition : 16.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 085 270

Injection pump
design : PES6A900320RS2718
error
governor design. : RSV350...1400A2B2215
-1R

Customer-spec. information
Customer : MWM

Engine : D 229/6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2,70...2,80
: (2,65...2,85)
Rack travel in mm : 9,00...12,0
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240
Tolerance + - ° : 0,5 (0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9,00...12,00
& maximum rack tra: 21,00
Difference ° CS : 3...4

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 8,50...8,60

Del. quantity cm3/ : 6,1...6,2

100 s: (5,9...6,4)

Spread cm3 : 0,3

100 s: (0,5)

2nd speed rpm : 350
Rack travel in mm : 5,40...5,60
Del. quantity cm3/ : 1,1...1,5
100 s: (0,9...1,7)
Spread cm3 : 0,25
100 s: (0,45)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...1,00

Governor spring pre-tension
Click setting x : 5,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1400
Del. quantity : 61,5...62,5
1000 : (59,5...64,5)
Spread cm3 : 3,0
1000 : (5,0)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:
1st rack travel in: 7,50
Speed rpm : 1440...1450
2nd rack travel in: 4,00
Speed rpm : 1475...1505
3rd rack travel in: 0,30...1,70

Speed rpm : 1650

LOW IDLE 1

Control lever

position degrees: 21...29

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 4,90...5,10

Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 350

Rack travel in mm : 5,40...5,50

Rack travel in mm : 2,00

Speed rpm : 560...620

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 8,50...8,60

2nd speed rpm : 500

Rack travel in m: 9,10...9,20

3rd speed rpm : 900

Rack travel in m: 8,80...9,10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 5000

Del.quantity cm3/ : 56,0...58,0

1000 s: (53,5...60,5)

Speed rpm : 900

Del.quantity cm3/ : 64,0...66,0

1000 s: (61,5...68,5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7,50

Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19,00...21,00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5,40...5,60

Del.quantity cm3/ : 11,0...15,0

1000 s: (9,0...17,0)

Spread cm3 : 2,5

1000 s: (4,5)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 j
Edition : 12.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 087 250

Injection pump
Pump designation : PES100A720RS265
Governor
Governor design. : RQ250/1100PA397R

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 355-5

1st version kW : 142
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 2,80...2,90
: (2,75...2,95)
Rack travel in mm : 9,00...12,00
Firing order : 1-2-4-5-3

Phasing : 0-72-144-216-288
Tolerance + - ° : 0,5 (0,75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12,8...12,9

Del. quantity cm³/ : 11,4...11,6

Spread cm³ : 0,35

100 s : (0,60)

2nd speed rpm : 250
Rack travel in mm : 7,3...7,5
Del. quantity cm³/ : 0,9...1,4
Spread cm³ : 0,3
100 s : (0,5)

GUIDE SLEEVE POSITION

Speed rpm : 600
Rack travel in mm : 15,6...16,4

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 114,0...116,0
1000 : (112,0...118,0)
Spread cm³ : 3,6
1000 : (6,0)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 16,0

Testing:
1st rack travel in: 11,80
Speed rpm : 1115...1130
2nd rack travel in: 4,0
Speed rpm : 1190...1220

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6,5

Testing:
Speed rpm : 100
Minimum rack trave: 7,60
Speed rpm : 250
Rack travel in mm : 6,40...6,60
Rack travel in mm : 2,00

Speed rpm : 400...460
Speed rpm : 500
Maximum rack travel: 1,00

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 450
Del. quantity cm³/ : 92,0...96,0
1000 s: (90,0...98,0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11,80
Speed rpm : 1115...1130

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140,0...160,0

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 t3
Edition : 16.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 087 270
Injection pump
Pump designation : PE6P110A72ORS3066V
Governor
Governor design. : RSV350...1100P1/462

Customer-spec. information
Customer : SAAB-SCANIA

Engine : DS 11

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00X1,50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3,30...3,40
: (3,25...3,45)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-
Tolerance + - ° : 0,5 (0,75)

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 14,00...14,10
Del. quantity cm3/ : 17,4...17,6
100 s : (-)
Spread cm3 : 0,4
100 s : (0,8)
2nd speed rpm : 350
Rack travel in mm : 6,40...6,60
Del. quantity cm3/ : 1,0...1,4
Spread cm3 : 0,2
100 s : (0,4)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...1,00

Governor spring pre-tension
Click setting x : 3,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 174,0...176,0
1000 : (171,0...179,0)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:
1st rack travel in: 13,10
Speed rpm : 1140...1150
2nd rack travel in: 3,70
Speed rpm : 1180...1220
5th rack travel in: 1350
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5,90...6,10

Testing:

Speed rpm : 100
Minimum rack trave: 20,00
Speed rpm : 350
Rack travel in mm : 6,40...6,60
Rack travel in mm : 2,00
Speed rpm : 440...500
Speed rpm : 600
Maximum rack trave: 1,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 180,0...183,0
1000 s: (177,0...186,0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13,10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190,0...240,0

LOW IDLE

Speed rpm : 350
Rack travel in mm : 0,80...1,20
Spread cm3 : 2,0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 k
Edition : 15.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 087 291
Injection pump
Pump designation : PESP100A72ORS463
Governor
Governor design. : RQV300...1100PA465

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 355-5

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2,80...2,90
 : (2,75...2,95)
Rack travel in mm : 9,00...12,00
Firing order : 1-2-4-5-3

Phasing : 0-72-144-216-288

G07

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 13,70...13,80
Del. quantity cm³/ : 12,50...12,70
Spread cm³ : 0,35
100 s : (0,60)

2nd speed rpm : 300
Rack travel in mm : 7,40...7,60
Del. quantity cm³/ : 0,90...1,30
Spread cm³ : 0,35
100 s : (0,55)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1100
travel mm : 8,40
2nd speed rpm : 800
travel mm : 5,00...5,50
3rd speed rpm : 400
travel mm : 2,00...2,60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1,0
Speed rpm : 1100
Rack travel in mm : 15,2...17,8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 125,0...129,0
1000 : (123,0...131,0)

RATED SPEED

1st version
Control lever
position degrees: 65...73

Testing:
1st rack travel in: 12,80
Speed rpm : 1140...1150
2nd rack travel in: 4,00
Speed rpm : 1230...1260
3rd rack travel in: 0,00...1,00
Speed rpm : 1350

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 100
Minimum rack trave: 9,00
Speed rpm : 300
Rack travel in mm : 7,40...7,60
Rack travel in mm : 2,00
Speed rpm : 550...610

CONSTANT REGULATION

Speed rpm : 300...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 450
Del.quantity cm3/ : 104,5...107,5
1000 s: (102,0...110,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12,70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140,0...160,0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 j 4
 Edition : 14.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 047
 Injection pump
 Pump designation : PES6A95D41ORS2561
 EP type number : 9 410 230 006
 Governor
 Governor design. : RSV600...1100A2C2049
 -1L
 Governor no. : 9 420 234 158

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466TH-02

1st version kW : 125.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 413 385 007

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 271 001

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

Prestroke mm : 1.85...1.95
 : (1.80...2.00)

G09

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del. quantity cm3/ : 10.7...10.9

100 s : (10.5...11.1)

Spread cm3 : 0.3

100 s : (0.6)

2nd speed rpm : 600.0

Rack travel in mm : 4.9...5.1

Del. quantity cm3/ : 1.2...1.6

100 s : (0.9...1.8)

Spread cm3 : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 107.0...109.0

1000 : (105.0...111.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.60

Speed rpm : 1145...1155

2nd rack travel in: 4.00

Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 600
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 600
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 705...765

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 950
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del. quantity cm³/ : 120.0...124.0
1000 s: (118.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 155.0...175.0
1000 s: (150.0...180.0)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 4.70...4.90

LOW IDLE

Speed rpm : 600

G10

Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: JOHN DEERE # RE28881

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1. rque-control
pring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 g 6
 Edition : 14.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 055
 Injection pump
 Pump designation : PES6A95D320LS2647
 EP type number : 9 410 230 020
 Governor
 Governor design. : RSV375...1050A2C2034
 -3R
 Governor no. : 9 420 234 152

Customer-spec. information
 Customer : J.I. CASE

Engine : A504 BDT

1st version kW : 163.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 0 681 273 009

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 271 020

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

Prestroke mm : 2.55...2.65
 : (2.50...2.70)

Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 14.9...15.1

100 s : (14.7...15.3)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 5.4...5.6

Del. quantity cm³/ : 1.6...2.2

100 s : (1.4...2.5)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 149.0...151.0

1000 : (147.0...153.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 11.90

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 375
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 535...595

SET IDLE AUXILIARY SPRING

Speed rpm : 1200
Rack travel in mm : 2.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in mm: 13.40...13.50
2nd speed rpm : 750
Rack travel in mm: 14.10...14.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 152.5...161.5
1000 s: (151.5...163.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.40...5.60

Del. quantity cm³/ : 16.5...22.5
1000 s: (14.0...25.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 450 1/min. ntrol
pring retainer.
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 g 4
Edition : 8.8.88
Replaces : 7.86
Test oil : ISO-4113

Combination no. : 9 400 230 056

Injection pump
Pump designation : PES6A95D320LS2647
EP type number : 9 410 230 020
Governor
Governor design. : RSV375...1050A2B2034
-4R

Customer-spec. information
Customer : J.I. CASE

Engine : A 504 BDT

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 9 681 273 009

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 271 020

Outside diameter
x Wall thickness
x Length mm : 6.35X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Rack travel in mm : 10.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.80...11.90

Del. quantity cm³/ : 12.7...12.9

100 s: (12.5...13.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 127.5...129.5

1000 : (125.5...131.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.80

Speed rpm : 1080...1100

2nd rack travel in: 4.00

Speed rpm : 1165...1185

4th rack travel in: 1250

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 5.0

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 375

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00

Speed rpm : 510...570

SET IDLE AUXILIARY SPRING

Speed rpm : 1200

Rack travel in mm : 2.55

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.80...11.90

2nd speed rpm : 750

Rack travel in m: 11.95...12.25

3rd speed rpm : 600

Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/ : 128.0...134.0

1000 s: (126.0...136.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

Speed rpm : 1080...1100

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...160.0

1000 s: (110.0...170.0)

Rack travel in mm : 21.00

LOW IDLE

Speed rpm : 375

Rack travel in mm : 4.90...5.10

Del.quantity cm3/ : 14.0...20.0

1000 s: (11.5...22.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 500 1/min. ntol
pring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 g 7
 Edition : 14.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 056
 Injection pump
 Pump designation : PES6A9SD320LS2647
 EP type number : 9 410 230 020
 Governor
 Governor design. : RSV375...1050A2C2034
 -4R
 Governor no. : 9 420 234 153

Customer-spec. information
 Customer : J.I. CASE

Engine : A504BDT

1st version kW : 148.5
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 9 681 273 009

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 271 020

Outside diameter
 x Wall thickness
 x Length mm : 6.35X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
 : (2.70...2.90)

Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.80...11.90

Del. quantity cm³/ : 12.7...12.9

100 s: (12.5...13.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 375.0
 Rack travel in mm : 4.9...5.1
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.2)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 127.5...129.5

1000 : (125.5...131.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.80

Speed rpm : 1080...1100

2nd rack travel in: 4.00

Speed rpm : 1165...1185
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 375
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 510...570

SET IDLE AUXILIARY SPRING

Speed rpm : 1200
Rack travel in mm : 2.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.80...11.90
2nd speed rpm : 750
Rack travel in m: 12.00...12.20
3rd speed rpm : 600
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 129.0...133.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1080...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...160.0
1000 s: (110.0...170.0)
Rack travel in mm : 21.00

LOW IDLE

Speed rpm : 375

G16

Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 14.0...20.0
1000 s: (11.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 500 1/min. ntol
pring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h 2
Edition : 15.06.88
Replaces : 6.11.87
Test oil : ISO-4113

Combination no. : 9 400 230 066

Injection pump
Pump designation : PES6A100D410RS2676
EP type number : 9 410 230 023
Governor
Governor design. : RSV425...1100A2C2161
-1L
Governor no. : 9 420 234 133

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466T

1st version kW : 120.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
: (2.40...2.60)

Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.40...9.50

Del. quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 2.1...2.5

100 s: (1.8...2.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 500

Del. quantity : 99.0...101.0

1000 : (97.0...103.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.40

Speed rpm : 1145...1155

2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 600...660

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.40...9.40
2nd speed rpm : 750
Rack travel in m: 10.60...10.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 173
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.10...9.30
2nd pressure hPa : 80
Rack travel in m: 9.40...9.80
3rd pressure hPa : 500
Rack travel in m: 10.60...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 500
Speed rpm : 750
Del. quantity cm³/ : 116.0...119.0
1000 s: (113.5...121.5)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : -
1000 s: (84.0...92.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (185.0...215.0)
Rack travel in mm : 19.40...19.40

HIGH IDLE

1st version

Speed rpm : 1195
Rack travel in mm : 4.70...4.90

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.30...5.50
Del. quantity cm³/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1. torque-control
pring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h
Edition : 15.06.88
Replaces : 6.11.87
Test oil : ISO-4113
Combination no. : 9 400 230 067
Injection pump
Pump designation : PES6A1000410RS2676
EP type number : 9 410 230 023
Governor
Governor design. : RSV425...1100A2C2161
-2L
Governor no. : 9 420 234 100

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466A

1st version kW : 141.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

Prestroke mm : 2.45...2.55
: (2.40...2.60)

Rack travel in mm : 10.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.20...10.30

Del. quantity cm³/ : 11.1...11.3

100 s : (10.9...11.5)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.8...6.0

Del. quantity cm³/ : 2.4...2.8

100 s : (2.1...3.0)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h : 500

Del. quantity : 111.0...113.0

1000 : (109.0...115.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in : 9.20

Speed rpm : 1145...1155

2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 600...660

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.20...10.30
2nd speed rpm : 750
Rack travel in m: 11.40...11.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.35...9.55

Measurement

Speed 1/min : 500
1st pressure hPa : 200
Rack travel in m: 11.00...11.10
2nd pressure hPa : 80
Rack travel in m: 9.70...10.10
3rd pressure hPa : 500
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 500
Speed rpm : 750
Del. quantity cm³/ : 127.5...130.5
1000 s: (125.0...133.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : -
1000 s: (85.0...93.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (185.0...215.0)
Rack travel in mm : 19.40

HIGH IDLE

1st version

Speed rpm : 1190
Rack travel in mm : 5.70...5.90

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.80...6.00
Del. quantity cm³/ : 24.0...28.0
1000 s: (21.5...30.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1. rque-control
pring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h12
 Edition : 14.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 069
 Injection pump
 Pump designation : PES6A1000410RS2676-1
 EP type number : 9 410 230 024
 Governor
 Governor design. : RSV450...1000A1C2186
 -1L
 Governor no. : 9 420 234 149

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466A

1st version kW : 140.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

Prestroke mm : 2.45...2.55
 : (2.40...2.60)

Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.60...11.60

Del. quantity cm³/ : 12.1...12.3

100 s : (11.9...12.5)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.8...6.0

Del. quantity cm³/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 121.5...123.5

1000 : (119.5...125.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 10.60

Speed rpm : 1045...1055

2nd rack travel in: 4.00

Speed rpm : 1070...1100
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 550...610

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.60...11.60
2nd speed rpm : 700
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 132.0...135.0
1000 s: (129.5...137.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1045...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (185.0...215.0)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1075
Rack travel in mm : 5.90...6.10

LOW IDLE

Speed rpm : 450

Rack travel in mm : 5.80...6.00
Del. quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1 with control-rod
travel = 10.50 mm.
Starting/full-load transition speed
from holding magnet = 500 1/min.

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h13
 Edition : 14.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 070
 Injection pump
 Pump designation : PES6A1000410RS2676-1
 EP type number : 9 410 230 024
 Governor
 Governor design. : RSV400...950A1C2186-2L
 Governor no. : 9 420 234 150
 Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466T

1st version kW : 102.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 271 001

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
 : (2.40...2.60)

Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 10.50...10.60

Del. quantity cm3/ : 9.7...9.9

100 s: (9.5...10.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.5...6.7

Del. quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del. quantity : 97.0...99.0

1000 : (95.0...101.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 9.50

Speed rpm : 995...1005

2nd rack travel in: 4.00

Speed rpm : 1045...1055
3rd rack travel in: 4.00
Speed rpm : 1050...1080
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00
Speed rpm : 535...595

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 10.50...10.60
2nd speed rpm : 650
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del. quantity cm³/ : 115.0...118.0
1000 s: (112.5...120.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 995...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 19.8...21.2
1000 s: (19.5...21.5)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.50...6.70
Del. quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Screw in torque-control-spring
retainer to make contact at 650 l/min.

Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1 with control-rod
travel = 10.50 mm.

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a 4
Edition : 9.9.88
Replaces : 12.3.87
Test oil : ISO-4113

Combination no. : 9 400 230 073

Injection pump
Pump designation : PES6A100D320/3RS2691
Governor
Governor design. : RSV425...1100A2C2190
R

Customer-spec. information
Customer : CDC

Engine : 6 CT-830

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 10.9...11.1

100 s : (10.7...11.3)

Spread cm³ : 0.35

100 s : (0.6)

2nd speed rpm : 425

Rack travel in mm : 5.70...5.90

Del. quantity cm³/ : 1.6...2.0

100 s : (1.3...2.2)

Spread cm³ : 0.35

100 s : (0.55)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 109.0...111.0

1000 : (107.0...113.0)

Spread cm³ : 3.5

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 11.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1180...1210

3rd rack travel in: 4.00

Speed rpm : 1195...1225

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 425

Rack travel in mm : 5.30

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 425

Rack travel in mm : 5.70...5.90

Rack travel in mm : 2.00

Speed rpm : 470...530

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 135.0

1000 s: (130.0)

LOW IDLE

Speed rpm : 425

Del.quantity cm³/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm³ : 3.5

1000 s: (5.5)

Remarks:

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 d 2
 Edition : 14.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 080
 Injection pump
 Pump designation : PES6A95D42OLS2551
 EP type number : 9 410 230 001
 Governor
 Governor design. : RSV375...1100AOC2166
 -1R
 Governor no. : 9 420 234 175

Customer-spec. information
 Customer : J.I.CASE

Engine : A-5048D

1st version kW : 92.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 9 681 273 009

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 271 020

Outside diameter
 x Wall thickness
 x Length mm : 6.35X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.50...10.50

Del.quantity cm3/ : 7.6...7.8

100 s: (7.4...8.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 7.7...7.9

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 76.0...78.0

1000 : (74.0...80.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9.50

Speed rpm : 1160...1170

2nd rack travel in: 4.00

Speed rpm : 1230...1250
4th rack travel in : 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7.8
Speed rpm : 375
Rack travel in mm : 7.70...7.90
Rack travel in mm : 2.00
Speed rpm : 670...730

SET IDLE AUXILIARY SPRING

Speed rpm : 1280
Rack travel in mm : 2.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.50...10.50
2nd speed rpm : 700
Rack travel in m: 11.80...12.00
3rd speed rpm : 600
Rack travel in m: 12.15...12.25

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 86.5...89.5
1000 s: (84.0...92.0)
Spread cm3 : 5.00
1000 s: (7.00)
Speed rpm : 600
Del.quantity cm3/ : 94.0...94.0
1000 s: (96.0...96.0)
Spread cm3 : 5.00
1000 s: (7.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...145.0
1000 s: (132.0...148.0)
Rack travel in mm : 17.80

LOW IDLE

Speed rpm : 375
Rack travel in mm : 7.70...7.90
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: CASE # A-166 258

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a11
 Edition : 15.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 089
 Injection pump
 Pump designation : PES6A1000320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -3R
 Governor no. : 9 420 234 125

Customer-spec. information
 Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 112.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

H01

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del. quantity cm3/ : 9.5...9.7
 100 s: (9.3...9.9)

Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del. quantity cm3/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 95.5...97.5
 1000 : (93.5...99.5)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:

1st rack travel in: 9.60
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 445...505

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 d
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 230 096

Injection pump
Pump designation : PES6A1000320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV425...900A4C2213-1R
Governor no. : 9 420 234 136

Customer-spec. information
Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 154.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

H03

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 830

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 13.5...13.7

100 s : (13.3...13.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 1.2...1.6

100 s : (0.9...1.8)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 830

Del. quantity : 135.0...137.0

1000 : (133.0...139.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...48

Testing:

1st rack travel in: 12.40
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 960...990
4th rack travel in: 1030
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 435...495

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.50...5.70
Del. quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.
Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1
APPLICATION
Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 d 1
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 230 096DA
Injection pump
Pump designation : PES6A1000320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV425...900A4C2213-1R
Governor no. : 9 420 234 136
Cust. part no. : 3908845
Customer-spec. information
Customer : C.D.C.

Engine : 6CT-I

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 047
Inlet press., bar : 1.50
Test nozzle holder
assembly : 1 688 901 017
Opening
pressure, bar : 207...210
Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.00...14.10

Del. quantity cm³/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 6.0...6.2

Del. quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 142.5...144.5

1000 : (140.5...146.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 13.00

Speed rpm : 795...805
2nd rack travel in: 4.00
Speed rpm : 825...855
3rd rack travel in: 4.00
Speed rpm : 830...860

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 440...500

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 795...805

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.00...6.20
Del. quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1
Adjust stop lever to 0.5...1.0 mm
before stop.
APPLICATION
Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a12
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 230 097

Injection pump
Pump designation : PES6A1000320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1100AOC2190
-8R

Governor no. : 9 420 234 137

Customer-spec. information
Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 156.6
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

H07

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 12.2...12.4

100 s: (12.0...12.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 5.6...5.8
Del. quantity cm³/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm³ : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 122.5...124.5
1000 : (120.5...126.5)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Testing:

1st rack travel in: 11.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1185...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: ?
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 445...505

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm
before stop.
Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a13
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 230 099

Injection pump
Pump designation : PES6A1000320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1050AOC2190
-10R
Governor no. : 9 420 234 142

Customer-spec. information
Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 89.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

H09

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.60...9.70

Del. quantity cm3/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 5.6...5.8
Del. quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del. quantity : 82.0...84.0
1000 : (80.0...86.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Testing:

1st rack travel in: 8.60
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 460...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 9.60...9.70
2nd speed rpm : 750
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 86.5...90.5
1000 s: (84.5...92.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

H10

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1 control
pring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 e
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 230 102

Injection pump
Pump designation : PES6A1000320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1050AOC2216
R

Governor no. : 9 420 234 146

Customer-spec. information
Customer : C.D.C.

Engine : 6 CTA 8.3

1st version kW : 141.7
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

H11

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 100.5...102.5

1000 : (98.5...104.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 10.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 25...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 495...555

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 126.0...130.0
1000 s: (124.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1 control
pring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 5,9 a
 Edition : 14.01.88
 Replaces : 6.11.87
 Test oil : ISO-4113
 Combination no. : 9 400 230 104
 Injection pump
 Pump designation : PES6A95D320RS2724
 EP type number : 9 410 230 029
 Governor
 Governor design. : RQV350...1350AB1224R
 Governor no. : 9 420 231 016

Customer-spec. information
 Customer : NAVISTAR

Engine : MARS DT 360

1st version kW : 123.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 025

Opening
 pressure, bar : 172...175

Orifice plate
 diameter mm : 0,5

Test lines : 9 681 271 001

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 7.5...7.7

100 s : (7.3...7.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 1.5...1.9

100 s : (1.2...2.1)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
 travel mm : 8.50...8.50

2nd speed rpm : 1500
 travel mm : 9.30...9.50

3rd speed rpm : 350
 travel mm : 1.00...1.00

4th speed rpm : 450
 travel mm : 1.90...2.40

5th speed rpm : 250
 travel mm : 0.10...0.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1550

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350

Aneroid pressure h: 900

Del.quantity : 75.5...77.5
1000 : (73.5...79.5)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...55

Testing:

1st rack travel in: 10.50
Speed rpm : 1390...1420
2nd rack travel in: 4.00
Speed rpm : 1505...1515
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...15
Speed rpm : 350
Rack travel in mm : 5.30...5.50
Speed rpm : 250
Maximum rack travel: 7.80

CONSTANT REGULATION

Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.10...9.30

Measurement

Speed 1/min : 500

1st pressure hPa : 466
Rack travel in m: 10.40...10.80
2nd pressure hPa : 227
Rack travel in m: 9.60...9.70
3rd pressure hPa : 900
Rack travel in m: 11.00...11.30

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : -
1000 s: (66.0...74.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1390...1420

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...150.0
1000 s: (145.0...145.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: NAVISTAR
: # 1 810 220 C92

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 5,9 a 1
 Edition : 14.01.88
 Replaces : 6.11.87
 Test oil : ISO-4113
 Combination no. : 9 400 230 105
 Injection pump
 Pump designation : PES6A95D32ORS2724
 EP type number : 9 410 230 029
 Governor
 Governor design. : RQV350...1350AB1221R
 Governor no. : 9 420 231 017

Customer-spec. information
 Customer : NAVISTAR

Engine : MARS DTA360

1st version kW : 134.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 025

Opening
 pressure, bar : 172...175

Orifice plate
 diameter mm : 0,5

Test lines : 9 681 271 001

Outside diameter
 x Wall thickness
 x Length mm : 6.35X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 8.0...8.2

100 s : (7.8...8.4)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 1.5...1.9

100 s : (1.2...2.1)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
 travel mm : 8.50...8.50

2nd speed rpm : 1500
 travel mm : 9.30...9.50

3rd speed rpm : 350
 travel mm : 1.00...1.00

4th speed rpm : 450
 travel mm : 1.90...2.40

5th speed rpm : 250
 travel mm : 0.10...0.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1550

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350

Aneroid pressure h: 900

Del.quantity : 80.0...82.0
1000 : (78.0...84.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 10.50
Speed rpm : 1395...1425
2nd rack travel in: 4.00
Speed rpm : 1525...1535
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 9...15
Speed rpm : 350
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 420...480
Speed rpm : 250
Maximum rack travel: 7.80

CONSTANT REGULATION

Speed rpm : 350...500

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.90...10.10

Measurement

Speed 1/min : 500

1st pressure hPa : 339
Rack travel in m: 10.90...11.30
2nd pressure hPa : 157
Rack travel in m: 10.30...10.40
3rd pressure hPa : 900

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : -
1000 s: (74.0...82.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1395...1425

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...150.0
1000 s: (145.0...145.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: NAVISTAR

: # 1 810 221 C92

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 e 1
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 230 106

Injection pump
Pump designation : PES6A1000320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1050AOC2216
-1R
Governor no. : 9 420 234 154

Customer-spec. information
Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 141.7
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

H17

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.90...12.00

Del. quantity cm3/ : 11.5...11.7

100 s: (11.3...11.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del. quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 115.0...117.0

1000 : (113.0...119.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.90...12.00
2nd speed rpm : 750
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 134.0...138.0
1000 s: (132.0...140.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (132.0...158.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

H18

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1 control
pring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b 3
Edition : 14.01.88
Replaces : 6.11.87
Test oil : ISO-4113

Combination no. : 9 400 230 107

Injection pump
Pump designation : PES6A1000320/3RS2691
-2
EP type number : 9 410 230 028
Governor
Governor design. : RQV350...1200AB1233R
Governor no. : 9 420 231 018

Customer-spec. information
Customer : C.D.C

Engine : 6CT830

1st version kW : 157.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 172...175

Orifice plate
diameter mm : 0,6

Test lines : 9 681 271 029

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar : 27...29

H19

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.80...10.90

Del. quantity cm³/ : 11.3...11.5

100 s : (11.1...11.7)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 1.6...2.0

100 s : (1.3...2.2)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.00...0.20

2nd speed rpm : 350

travel mm : 1.00...1.50

3rd speed rpm : 450

travel mm : 1.90...2.40

4th speed rpm : 1200

travel mm : 6.90...6.90

5th speed rpm : 1350

travel mm : 8.15...8.65

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1435

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 500
Del.quantity : 113.0...115.0
1000 : (111.0...117.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 9.80
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1315...1345
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 9...15
Speed rpm : 350
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 480...540

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 240
Rack travel mm : 9.70...9.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.50
2nd pressure hPa : 333
Rack travel in m: 10.20...10.60
3rd pressure hPa : 500
Rack travel in m: 10.70...11.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : -
1000 s: (82.5...90.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.60...4.80
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3908558

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a 6
Edition : 15.06.88
Replaces : 6.11.87
Test oil : ISO-4113

Combination no. : 9 400 230 109

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 030
Governor
Governor design. : RSV400...110QAOC2190
-21R
Governor no. : 9 420 234 164

Customer-spec. information
Customer : C.D.C.

Engine : 6CT830

1st version kW : 117.1
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

H21

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del. quantity cm³/ : 9.3...9.5

100 s : (9.1...9.5)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 5.8...6.0
Del. quantity cm³/ : 1.6...2.0
100 s : (1.3...2.2)
Spread cm³ : 0.3
100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 93.5...95.5
1000 : (91.5...95.5)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 45...54

Testing:

1st rack travel in: 9.60
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 440...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 750
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 99.0...103.0
1000 s: (97.0...105.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...150.0
1000 s: (135.0...155.0)
Rack travel in mm : 21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1 control
pring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a 7
 Edition : 15.06.88
 Replaces : 6.11.87
 Test oil : ISO-4113
 Combination no. : 9 400 230 110
 Injection pump
 Pump designation : PES6A1000320/3RS2691
 -4
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV400...1100AOC2190
 -22R
 Governor no. : 9 420 234 173

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 150.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

 Rack travel in mm : 12.40...12.50

 Del.quantity cm3/ : 12.1...12.3

 100 s: (11.9...12.5)

 Spread cm3 : 0.3

 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm3/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 121.5...123.5
 1000 : (119.5...125.5)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:

1st rack travel in: 11.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 460...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.40...12.50
2nd speed rpm : 750
Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 136.0...140.0
1000 s: (134.0...142.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...150.0
1000 s: (135.0...155.0)
Rack travel in mm : 21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00

Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1 control
pring retainer.

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a 8
 Edition : 15.06.88
 Replaces : 6.11.87
 Test oil : ISO-4113

Combination no. : 9 400 230 111

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV400...1100AOC2190
 -23R
 Governor no. : 9 420 234 174

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

H25

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

 Rack travel in mm : 11.90...12.00

 Del. quantity cm3/ : 11.3...11.5

 100 s : (11.1...11.7)

 Spread cm3 : 0.3

 100 s : (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del. quantity cm3/ : 1.6...2.0
 100 s : (1.3...2.2)
 Spread cm3 : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 113.5...115.5
 1000 : (111.5...117.5)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 47...55

Testing:

1st rack travel in: 10.90
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 485...545

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.90...12.00
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 120.0...124.0
1000 s: (118.0...126.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...150.0
1000 s: (135.0...155.0)
Rack travel in mm : 21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00

Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjustment without torque-control
spring retainer with 1 mm less
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1 control
pring retainer.

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 5,9 a 2
 Edition : 14.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 113
 Injection pump
 Pump designation : PES6A9SD32ORS2724
 EP type number : 9 410 230 029
 Governor
 Governor design. : RQV350...1350AB1224-1R
 Governor no. : 9 420 231 019
 Customer-spec. information
 Customer : NAVISTAR
 Engine : DTA 360
 1st version kW : 130.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 038
 Inlet press., bar : 2.80
 Test nozzle holder
 assembly : 1 688 901 025
 Opening
 pressure, bar : 172...175
 Orifice plate
 diameter mm : 0,5
 Test lines : 9 681 271 001
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

H27

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350
 Rack travel in mm : 11.50...11.60
 Del. quantity cm3/ : 8.0...8.2
 100 s: (7.8...8.4)
 Spread cm3 : 0.3
 100 s: (0.6)
 2nd speed rpm : 350.0
 Rack travel in mm : 5.3...5.5
 Del. quantity cm3/ : 1.5...1.9
 100 s: (1.2...2.1)
 Spread cm3 : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.10...0.50
 2nd speed rpm : 350
 travel mm : 1.00...1.00
 3rd speed rpm : 450
 travel mm : 1.90...2.40
 4th speed rpm : 1400
 travel mm : 8.50...8.50
 5th speed rpm : 1500
 travel mm : 9.30...9.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1550
 Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1350

Aneroid pressure h: 900
Del.quantity : 80.0...82.0
1000 : (78.0...84.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...52

Testing:

1st rack travel in: 10.50
Speed rpm : 1405...1435
2nd rack travel in: 4.00
Speed rpm : 1535...1545
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...15
Speed rpm : 350
Rack travel in mm : 5.30...5.50
Speed rpm : 250
Maximum rack travel: 7.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.90...9.10

Measurement
Speed 1/min : 500

1st pressure hPa : 426
Rack travel in m: 10.70...11.10
2nd pressure hPa : 207
Rack travel in m: 9.60...9.70
3rd pressure hPa : 900
Rack travel in m: 11.50...11.80

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 850
Del.quantity cm3/ : -
1000 s: (79.5...87.5)

H28

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : -
1000 s: (64.0...72.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1405...1435

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (125.0...155.0)
Rack travel in mm : 14.60...14.80

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: NAVISTAR
: # 1 811 533 C91

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 z
Edition : 14.01.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 230 114

Injection pump
Pump designation : PES6A1000410RS2741
EP type number : 9 410 230 031
Governor
Governor design. : RSV400...1100A2C2204
-2L
Governor no. : 9 420 234 177

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466 TT

1st version kW : 124.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 130...150

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
: (2.90...3.10)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.30...10.40

Del. quantity cm³/ : 10.5...10.7

100 s: (10.3...10.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 4.2...4.4

Del. quantity cm³/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm³ : 0.7

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 105.0...107.0

1000 : (103.0...109.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 9.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1205
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 3.8

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.20...4.40
Rack travel in mm : 2.00
Speed rpm : 520...580

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.30...10.40
2nd speed rpm : 700
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del. quantity cm³/ : 127.5...130.5
1000 s: (125.0...133.0)
Speed rpm : 750
Spread cm³ : 4.00
1000 s: (5.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (125.0...155.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400

J02

Rack travel in mm : 4.20...4.40
Del. quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 7.00
1000 s: (9.00)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 450 1/min. ntol
pring retainer.
Start-of-delivery mark = 12,5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a10
 Edition : 14.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 115
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -24R
 Governor no. : 9 420 234 178
 Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 9 680 271 029

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 99.0...101.0

1000 : (97.0...103.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 9.90

Speed rpm : 1305...1315

2nd rack travel in: 4.00

Speed rpm : 1360...1390
4th rack travel in: 1450
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 470...530

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 391 3329

Adjust stop lever to 0.5...1.0 mm
before stop.
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 5,9 b
 Edition : 15.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 120
 Injection pump
 Pump designation : PES6A95D32ORS2750
 EP type number : 0 410 896 906
 Governor
 Governor design. : RQV350...1350AB1236R
 Governor no. : 9 420 231 021

Customer-spec. information
 Customer : NAVISTAR

Engine : MARS DTA360

1st version kW : 134.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 110

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 11.00...11.10

Del. quantity cm3/ : 7.1...7.3

100 s : (6.9...7.5)

Spread cm3 : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.1...5.3

Del. quantity cm3/ : 1.3...1.7

100 s : (1.0...1.9)

Spread cm3 : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
 travel mm : 8.50...8.50

2nd speed rpm : 1500
 travel mm : 9.30...9.50

3rd speed rpm : 350
 travel mm : 1.00...1.00

4th speed rpm : 450
 travel mm : 1.90...2.40

5th speed rpm : 250
 travel mm : 0.10...0.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1535

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350

Aneroid pressure h: 900

Del.quantity : 71.0...73.0
1000 : (69.0...75.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Testing:
1st rack travel in: 10.00
Speed rpm : 1405...1435
2nd rack travel in: 4.00
Speed rpm : 1520...1530
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:
Speed rpm : 250
Minimum rack travel: 7.80
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.70...8.90

Measurement
Speed 1/min : 500

1st pressure hPa : 305
Rack travel in m: 10.30...10.70
2nd pressure hPa : 175
Rack travel in m: 9.30...9.40
3rd pressure hPa : 900
Rack travel in m: 11.00...11.10

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

J06

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : -
1000 s: (53.5...61.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1405...1435

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (120.0...150.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 5,9 b 1
 Edition : 15.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 121
 Injection pump
 Pump designation : PES6A95D32ORS2750
 EP type number : 0 410 896 906
 Governor
 Governor design. : RQV350...1350AB1236-1R
 Governor no. : 9 420 231 022

Customer-spec. information
 Customer : NAVISTAR

Engine : MARS DT 360

1st version kW : 126.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 110

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

 Rack travel in mm : 11.20...11.30

 Del. quantity cm3/ : 7.2...7.4

 100 s : (7.0...7.6)

 Spread cm3 : 0.3

 100 s : (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 5.1...5.3
 Del. quantity cm3/ : 1.3...1.7
 100 s : (1.0...1.9)
 Spread cm3 : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
 travel mm : 8.50...8.50
 2nd speed rpm : 1500
 travel mm : 9.30...9.50
 3rd speed rpm : 350
 travel mm : 1.00...1.00
 4th speed rpm : 450
 travel mm : 1.90...2.40
 5th speed rpm : 250
 travel mm : 0.10...0.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1535
 Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1350

Aneroid pressure h: 900
Del.quantity : 72.0...74.0
1000 : (70.0...76.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:
1st rack travel in: 10.20
Speed rpm : 1400...1430
2nd rack travel in: 4.00
Speed rpm : 1525...1535
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 250
Minimum rack travel: 7.80
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.40...8.60

Measurement
Speed 1/min : 500

1st pressure hPa : 480
Rack travel in m: 10.70...11.10
2nd pressure hPa : 240
Rack travel in m: 9.30...9.40
3rd pressure hPa : 900
Rack travel in m: 11.20...11.30

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : -
1000 s: (46.0...54.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1400...1430

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (120.0...150.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 5,9 c
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 230 122
Injection pump
Pump designation : PES6A9SD32ORS2745
EP type number : 9 410 230 033
Governor
Governor design. : RGV350...1350AB1236-2R
Governor no. : 9 420 231 023

Customer-spec. information
Customer : NAVISTAR

Engine : MARS DTA360

1st version kW : 130.0
Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 110

Opening
pressure, bar : 250...253

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

J09

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350
Rack travel in mm : 11.30...11.40
Del. quantity cm3/ : 7.4...7.6
100 s : (7.2...7.8)
Spread cm3 : 0.3
100 s : (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 5.1...5.3
Del. quantity cm3/ : 1.3...1.7
100 s : (1.0...1.9)
Spread cm3 : 0.3
100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
travel mm : 8.50...8.50
2nd speed rpm : 1500
travel mm : 9.30...9.50
3rd speed rpm : 350
travel mm : 1.00...1.00
4th speed rpm : 450
travel mm : 1.90...2.40
5th speed rpm : 250
travel mm : 0.10...0.50

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1535
Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1350

Aneroid pressure h: 900
Del. quantity : 74.0...76.0
1000 : (72.0...78.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:
1st rack travel in: 10.30
Speed rpm : 1410...1440
2nd rack travel in: 4.00
Speed rpm : 1535...1545
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 250
Minimum rack travel: 7.80
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.20...8.40

Measurement
Speed 1/min : 500

1st pressure hPa : 375
Rack travel in m: 10.60...11.00
2nd pressure hPa : 190
Rack travel in m: 9.10...9.20
3rd pressure hPa : 900
Rack travel in m: 11.30...11.40

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : -
1000 s: (46.0...54.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 1410...1440

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del. quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 a8
Edition : 6.5.88
Replaces : 5.3.87
Test oil : ISO-4113

Combination no. : 9 400 231 009

Injection pump
Pump designation : PES6P110A720RS370
EP type number : 0 412 016 052
Governor
Governor design. : RSV400...1050P0/453
DR
Governor no. : 9 420 234 011

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 40...45

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.75...2.85
: (2.70...2.90)

Rack travel in mm : 13.10
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.10...13.20

Del. quantity cm3/ : 18.3...18.5

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

2nd speed rpm : 400
Rack travel in mm : 6.40...6.60
Del. quantity cm3/ : 1.8...2.6

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 600

Del. quantity : 183.0...185.0

1000 : (180.0...188.0)

Spread cm3 : 4.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 35...43

Testing:

1st rack travel in: 12.10

Speed rpm : 1095...1105

2nd rack travel in: 6.20

Speed rpm : 1135...1165

4th rack travel in: 1300

Speed rpm : 0.30...1.30

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6.00

Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 400

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 13.10...13.20

2nd speed rpm : 650

Rack travel in m: 13.90...14.00

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 550

Pressure hPa : 580

Rack travel mm : 13.30...13.40

Measurement

Speed 1/min : 550

1st pressure hPa : 220

Rack travel in m: 11.10...11.50

2nd pressure hPa : -

Rack travel in m: 10.30...10.50

START CUT-OUT

Speed 1/min : 450...750

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 630

Del. quantity cm³/ : 201.5...204.5

1000 s: (198.5...207.5)

Spread cm³ : 6.0

1000 s: (9.0)

Aneroid pressure h: -

Speed rpm : 550

Del. quantity cm³/ : 113.0...119.0

1000 s: (110.0...122.0)

Spread cm³ : 6.0
1000 s: (9.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 183.0...203.0

1000 s: (-)

Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1150

Rack travel in mm : 6.10...6.30

Del. quantity cm³/ : 44.0...66.0

1000 s: (-)

Spread cm³ : 4.0

1000 s: (-)

LOW IDLE

Speed rpm : 400

Rack travel in mm : 6.40...6.60

Del. quantity cm³/ : 18.0...26.0

1000 s: (-)

Spread cm³ : 4.0

1000 s: (-)

Remarks:

: JOHN DEERE NO. AR

: 88765

Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

APPLICATION

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 a3
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 231 039
Injection pump
Pump designation : PES6P110A720RS370
EP type number : 0 412 016 052
Governor
Governor design. : RSV450...1050POA465
Governor no. : 9 420 234 180

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619A

1st version kW : 201,0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 27...29

Prestroke mm : 2.75...2.85
: (2.70...2.90)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 17.4...17.6

100 s : (17.1...17.9)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 450.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 1.9...2.5

100 s : (1.7...2.7)

Spread cm³ : 0.4

100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h : 700

Del. quantity : 174.0...176.0

1000 : (171.0...179.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.40

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1205...1235
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 580...640

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.40...12.50
2nd speed rpm : 650
Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.50...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : 280
Rack travel in m: 11.40...11.80
2nd pressure hPa : 590
Rack travel in m: 13.60...13.70
3rd pressure hPa : 700
Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 650
Del. quantity cm³/ : 198.5...201.5
1000 s: (195.0...205.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : -
1000 s: (123.0...133.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 17.0...21.0
1000 s: (165.0...215.0)
Rack travel in mm : 20.00...21.00

HIGH IDLE

1st version

Speed rpm : 1170
Rack travel in mm : 7.40...7.60

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 19.0...25.0
1000 s: (17.0...27.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
Screw in torque-control-spring
retainer to make contact at 650 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 n21
 Edition : 19.08.88
 Replaces : -
 Test oil : ISO 4113
 Combination no. : 9 407 083 200
 Injection pump
 Pump designation : PES6A90D410RS2293
 Governor
 Governor design. : RQV300...1425AB884L

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 352

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ----

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,5 (0,75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9,00
 Del. quantity cm³/ : 4,5...5,0
 100 s : (-)
 Spread cm³ : 0,4
 100 s : (-)
 2nd speed rpm : 200
 Rack travel in mm : 9,00
 Del. quantity cm³/ : 2,0...2,8
 100 s : (-)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Del. quantity : 57.0...59.0
 1000 : (-)
 Spread cm³ : 4.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 62...70

Testing:
 1st rack travel in: 17.70
 Speed rpm : 1410...1440
 2nd rack travel in: 4.75
 Speed rpm : 1620...1680
 4th rack travel in: 1780
 Speed rpm : <0

LOW IDLE 1

Control lever
 position degrees: 6...14

Testing:
 Speed rpm : 100
 Minimum rack travel: 6,60
 Speed rpm : 250
 Rack travel in mm : 5,50...7,00
 Rack travel in mm : 1.40
 Speed rpm : 620...680

CONSTANT REGULATION

Speed rpm : 400...600

START CUT-OUT

Speed 1/min : 220

BREAKAWAY

1st version

Speed rpm : 1455...1465

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 13,70...14,30

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MM 5,9 i3
Edition : 16.08.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 407 083 256

Injection pump
Pump designation : PES6A90D32ORS2605
Governor
Governor design. : RSV325...1325A2B2096
R

Customer-spec. information
Customer : MM

Engine : TD 229-6

1st version kW : 118
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2,20...2,30
: (2,15...2,35)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240
Tolerance + - ° : 0,5 (0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8,80
& maximum rack tra: 21,00
Difference ° CS : 4...5

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 8,75...8,85

Del. quantity cm³/ : 7,20...7,30

100 s: (7,00...7,50)

Spread cm³ : 0,3

100 s: (0,5)

2nd speed rpm : 325
Rack travel in mm : 6,90...7,10
Del. quantity cm³/ : 1,3...1,7
100 s: (1,1...1,9)
Spread cm³ : 0,25
100 s: (0,45)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...1,00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1300
Del. quantity : 72,0...73,0
1000 : (70,0...75,0)
Spread cm³ : 3,0
1000 : (5,0)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 7,80
Speed rpm : 1365...1375
2nd rack travel in: 4,00
Speed rpm : 1410...1440
3rd rack travel in: 0,30...1,70

Speed rpm : 1500

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 5,40...5,60

Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 325

Rack travel in mm : 5,90...6,10

Rack travel in mm : 2,00

Speed rpm : 580...640

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 8,75...8,85

2nd speed rpm : 1000

Rack travel in m: 8,85...9,15

3rd speed rpm : 800

Rack travel in m: 9,05...9,25

4th speed rpm : 500

Rack travel in m: 9,15...9,25

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000

Del.quantity cm3/ : 67,5...69,5

1000 s: (65,0...72,0)

Speed rpm : 800

Del.quantity cm3/ : 62,0...64,0

1000 s: (59,5...66,5)

Speed rpm : 500

Del.quantity cm3/ : 54,0...56,0

1000 s: (51,5...58,5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7,80

Speed rpm : 1365...1375

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19,00

LOW IDLE

Speed rpm : 325

Rack travel in mm : 6,90...7,10

Del.quantity cm3/ : 13,5...17,5

1000 s: (11,5...19,5)

Spread cm3 : 2,5

1000 s: (4,5)

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,7 H1
Edition : 02.08.88
replaces : 14.07.87
Calibrating oil : ISO 4113

Injection pump : VE 4/10F2050 R192
Type number : 0 450 404 040

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8144.91.200

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC): +0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 800
Setting value mm: 6,6...7,0

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 800
Setting value bar: 6,6...7,2

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 800
Del. quantity cm³/
1000H.: 56,0...57,0
Dispersion cm³/
1000H.: 3,0

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000H.: 43,5...44,5

Low-idle speed regulation:

Speed 1/min: 400
Del. quantity cm³/
1000H.: 9,0...13,0
Dispersion cm³/
1000H.: 3,0

Full-load speed regulation:

Speed 1/min: 2250
Charge press. hPa: 800
Del. quantity cm³/
1000H.: 34,5...40,5

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 44,0

Load-dependent start of delivery:

Speed 1/min: 600

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 800
TD travel mm: 2,6...3,4
mm: (2,3...3,7)
2nd speed 1/min: 1500
Charge press. hPa: 800
TD travel mm: 6,6...7,0
mm: (6,3...7,3)
3rd speed 1/min: 2050
Charge press. hPa: 800
TD travel mm: 7,8...8,6
mm: (7,5...8,9)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 800
Supply-pump
pressure bar: 4,1...4,7
2nd speed 1/min: 1500
Charge press. hPa: 800
Supply-pump
pressure bar: 6,6...7,2
3rd speed 1/min: 2050
Charge press. hPa: 800
Supply-pump
pressure bar: 8,2...8,8

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 800
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2050
Charge press. hPa: 800
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting
point hPa: 250
LDA stroke mm: 4,5
Del. quantity cm³/: 43,5...44,5
1000H.: (41,5...46,5)
2nd speed 1/min: 2400
Charge press. hPa: 800
Del. quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 2350
Charge press. hPa: 800
Del. quantity cm³/: 1,5...8,5
1000H.: -
4th speed 1/min: 2250
Charge press. hPa: 800
Del. quantity cm³/: 34,5...40,5
1000H.: (33,5...41,5)
5th speed 1/min: 2050
Charge press. hPa: 800
Del. quantity cm³/: 48,5...51,5
1000H.: (47,8...52,2)
6th speed 1/min: 1500
Charge press. hPa: 800
Del. quantity cm³/: 56,0...57,0
1000H.: (54,5...58,5)
7th speed 1/min: 800
Charge press. hPa: 250
Del. quantity cm³/: 51,5...52,5
1000H.: (49,5...54,5)
8th speed 1/min: 600
Charge press. hPa: 800

Del. quantity cm³/: 55,5...58,5
1000H.: -
9th speed 1/min: 600
Charge press. hPa: -
Del. quantity cm³/: 43,5...44,5
1000H.: (41,5...46,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del. quantity cm³/: 9,0...13,0
1000H.: (7,0...15,0)
2nd speed 1/min: 450
Del. quantity cm³/: 1,5...6,5
1000H.: -
3rd speed 1/min: 500
Del. quantity cm³/: 0,5...5,5
1000H.: -
4th speed 1/min: 700
Del. quantity cm³/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 450
Del. quantity cm³/: -
ind. 1000H: 47,0

2nd speed 1/min: 500
Del. quantity cm³/: -
max. 1000H: 46,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | |
|----------|----|---------------|
| K | mm | : - |
| KF | mm | : 5,6...6,0 |
| MS | mm | : 1,1...1,5 |
| SVS max. | mm | : 4,2 |
| XK | mm | : 17,0...19,0 |
| XL | mm | : 11,4...14,8 |

Remarks:
Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 3,7F
Edition : 02.08.88
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/10F1500 R57-6
Type number : 0 460 404 045

Customer-specific information
Customer : MAN

Engine : DO 224M

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC) : +0,02 (0,04)

Indicator setting:
Piston stroke mm : 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000
Setting value mm: 5,2...5,6

Supply-pump pressure:

Speed 1/min: 1000

Setting value bar: 5,5...6,1

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm³/
1000H.: 63,5...64,5
Dispersion cm³/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 350
Del. quantity cm³/
1000H.: 10,0...14,0
Dispersion cm³/: 2,0
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 1650
Del. quantity cm³/
1000H.: 4,0...10,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 60,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
TD travel mm: 2,1...2,9
mm: (1,8...3,2)
2nd speed 1/min: 1000
TD travel mm: 5,2...5,6
mm: (4,7...6,1)
3rd speed 1/min: 1400
TD travel mm: 7,8...8,6
mm: (7,5...8,9)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3,6...4,2
2nd speed 1/min: 1000
Supply-pump
pressure bar: 5,5...6,1
3rd speed 1/min: 1400
Supply-pump
pressure bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 1500
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1740
Del. quantity cm3/: 0,0...2,0
1000H.: -
2nd speed 1/min: 1650
Del. quantity cm3/: 4,0...10,0
1000H.: (2,5...11,5)
3rd speed 1/min: 1550
Del. quantity cm3/: 0,0...60,0
1000H.: -
4th speed 1/min: 1480
Del. quantity cm3/: 67,5...70,5
1000H.: (66,4...71,6)
5th speed 1/min: 1000
Del. quantity cm3/: 63,5...64,5
1000H.: (61,4...66,6)
6th speed 1/min: 600
Del. quantity cm3/: 58,3...61,7
1000H.: (56,6...63,4)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1500
Del. quantity cm3/: -
1000H.: -

Idle delivery:

1st speed 1/min: 350
Del. quantity cm3/: 10,0...14,0
1000H.: (7,5...16,5)
2nd speed 1/min: 380
Del. quantity cm3/: 4,0...8,0
1000H.: (1,5...10,5)
3rd speed 1/min: 450
Del. quantity cm3/: 0,0...2,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350
Del. quantity cm3/: -
ind. 1000H: 70,0
2nd speed 1/min: 450
Del. quantity cm3/: -
max. 1000H : 70,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

| | | | |
|----|----|---|-------------|
| K | mm | : | - |
| KF | mm | : | 5,6...6,0 |
| MS | mm | : | 1,0...1,4 |
| XK | mm | : | 17,0...19,0 |
| XL | mm | : | 13,6...17,0 |

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F 2,5 01
Edition : 03.08.88
replaces : 14.03.88
Calibrating oil : ISO 4113

Injection pump : VE 4/10F2050 R295-1
Type number : 0 460 404 060

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8144.91.2101

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC) : +0,02 (0,04)

Indicator setting:
Piston stroke mm : 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 600
Charge press. hPa: 800
Setting value mm: 1,8...2,2

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 800
Setting value bar: 5,1...5,7

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 800
Del. quantity cm³/
1000H.: 59,5...60,5
Dispersion cm³/
1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 600
Del. quantity cm³/
1000H.: 45,5...46,5

Low-idle speed regulation:

Speed 1/min: 400
Del. quantity cm³/
1000H.: 13,0...17,0
Dispersion cm³/
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2325
Charge press. hPa: 800
Del. quantity cm³/
1000H: 13,0...19,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 45,0

Load-dependent start of delivery:

Speed 1/min: 600

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 800
TD travel mm: 1,8...2,2
mm: (1,5...2,5)
2nd speed 1/min: 1500
Charge press. hPa: 800
TD travel mm: 5,6...6,4
mm: (5,3...6,7)
3rd speed 1/min: 2000
Charge press. hPa: 800

TD travel mm: 8,1...8,9
mm: (7,8...9,2)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 800
Supply-pump pressure bar: 3,1...3,7
2nd speed 1/min: 1500
Charge press. hPa: 800
Supply-pump pressure bar: 5,1...5,7
3rd speed 1/min: 2000
Charge press. hPa: 800
Supply-pump pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 800
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2000
Charge press. hPa: 800
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting point hPa: 290
Del. quantity cm³/: 49,5...50,5
1000H.: (47,5...52,5)
2nd speed 1/min: 2400
Charge press. hPa: 800
Del. quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 2325
Del. quantity cm³/: 13,0...19,0
1000H.: (12,0...20,0)
4th speed 1/min: 2000
Charge press. hPa: 800
Del. quantity cm³/: 53,5...56,5
1000H.: (52,8...57,2)
5th speed 1/min: 1500
Charge press. hPa: 800
Del. quantity cm³/: 59,5...60,5
1000H.: (58,0...62,0)
6th speed 1/min: 800
Charge press. hPa: 290
Del. quantity cm³/: 49,5...50,5
1000H.: (47,5...52,5)
7th speed 1/min: 600
Charge press. hPa: 800
Del. quantity cm³/: 54,5...57,5
1000H.: -
8th speed 1/min: 600

Charge press. hPa: -
Del. quantity cm³/: 45,5...46,5
1000H.: (43,5...48,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del. quantity cm³/: 13,0...17,0
1000H.: (11,0...19,0)
2nd speed 1/min: 450
Del. quantity cm³/: 4,0...9,0
1000H.: -
3rd speed 1/min: 500
Del. quantity cm³/: 3,5...8,5
1000H.: -
4th speed 1/min: 700
Del. quantity cm³/: 1,5...4,5
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 450
Del. quantity cm³/: -
ind. 1000H: 42,5
2nd speed 1/min: 500
Del. quantity cm³/: -
max. 1000H : 46,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : -
KF mm : 5,6...6,0
MS mm : 1,1...1,5

Remarks:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 2,4 M
Edition : 02.08.88
replaces : 04.11.87
Calibrating oil : ISO 4113

Injection pump : VE 6/10F2150 L152
Type number : 0 460 406 040

Customer-specific information
Customer : VW

Engine : 087T-LT

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000
Charge press. hPa: 750
Setting value mm: 0,5...1,3

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 5,5...6,1

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del.quantity cm3/
1000H.: 41,5...42,5
Dispersion cm3/ : 2,5
1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 600
Del.quantity cm3/
1000H.: 23,5...24,5

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/ : 2,0
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2400
Charge press. hPa: 750
Del.quantity cm3/
1000H: 10,0...14,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 750
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
2nd speed 1/min: 1500
Charge press. hPa: 750
TD travel mm: 2,3...2,7
mm: (1,8...3,2)
3rd speed 1/min: 2150
Charge press. hPa: 750
TD travel mm: 4,4...5,2
mm: (4,1...5,5)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 750

Supply-pump
 pressure bar: 3,1...3,7
 2nd speed 1/min: 1500
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 5,5...6,1
 3rd speed 1/min: 2150
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 7,2...7,8

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Overflow : 41...83
 quantity cm3/10s: (26...98)
 2nd speed 1/min: 2150
 Overflow : 55...138
 quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
 Charge-air pressure-setting
 point hPa: 300
 LDA stroke mm: 4,5
 Del. quantity cm3/: 32,5...33,5
 1000H.: (30,0...36,0)
 2nd speed 1/min: 2600
 Charge press. hPa: 750
 Del. quantity cm3/: 0,0...3,0
 1000H.: -
 3rd speed 1/min: 2400
 Charge press. hPa: 750
 Del. quantity cm3/: 10,0...14,0
 1000H.: (8,0...16,0)
 4th speed 1/min: 2300
 Charge press. hPa: 750
 Del. quantity cm3/: 20,5...30,5
 1000H.: (19,5...31,5)
 5th speed 1/min: 2150
 Charge press. hPa: 750
 Del. quantity cm3/: 35,5...37,5
 1000H.: (34,3...38,7)
 6th speed 1/min: 1500
 Charge press. hPa: 750
 Del. quantity cm3/: 41,5...42,5
 1000H.: (39,8...44,2)
 7th speed 1/min: 750
 Charge press. hPa: 300
 Del. quantity cm3/: 32,5...33,5
 1000H.: (30,0...36,0)
 8th speed 1/min: 600
 Charge press. hPa: 750
 Del. quantity cm3/: 38,0...41,0
 1000H.: (36,5...42,5)
 9th speed 1/min: 600
 Charge press. hPa: -
 Del. quantity cm3/: 23,5...24,5
 1000H.: (21,0...27,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 375
 ELAB volt: -
 Del. quantity cm3/: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
 Del. quantity cm3/: 6,0...10,0
 1000H.: (4,0...12,0)
 2nd speed 1/min: 450
 Del. quantity cm3/: 0,0...3,0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
 Del. quantity cm3/: -
 ind. 1000H.: 25,0
 2nd speed 1/min: 500
 Del. quantity cm3/: -
 max. 1000H.: 27,0

Shutoff electromagnet:

Cut-in
 min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | |
|----------|----|-------------|
| K | mm | : 3,2...3,4 |
| KF | mm | : 6,2...6,6 |
| MS | mm | : 0,9...1,3 |
| SVS max. | mm | : - |

Remarks:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 3,6K
Edition : 03.08.88
replaces : 20.07.87
Calibrating oil : ISO 4113

Injection pump : VE 4/11F1350 R257
Type number : 0 460 414 039

Customer-specific information
Customer : IVECO-FIAT

Engine : 8040.25.200

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
pressure bar : 172...175

Perforated-plate
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,4
(from BDC) : $\pm 0,02$ (0,04)

Indicator setting:
Piston stroke mm : 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 3,8...4,2

Supply-pump pressure:

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value bar: 5,7...6,3

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 93,5...94,5
Dispersion cm³/
1000H.: (5,0)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 68,5...69,5

Low-idle speed regulation:

Speed 1/min: 350
Del. quantity cm³/
1000H.: 22,0...26,0
Dispersion cm³/
1000H.: (4,0)

Full-load speed regulation:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 34,0...40,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 90,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
Charge press. hPa: 1000
TD travel mm: 1,7...2,5
mm: (1,4...2,8)
2nd speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 3,8...4,2
mm: (3,3...4,7)
3rd speed 1/min: 1350
Charge press. hPa: 1000

TD travel mm: 6,3...7,1
mm: (6,0...7,4)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 3,6...4,2
2nd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump pressure bar: 4,8...5,4
3rd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 5,7...6,3
4th speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump pressure bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1350
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500
Charge-air pressure-setting point hPa: 250
LDA stroke mm: 3,0
Del. quantity cm³/: 79,0...80,0
1000H.: (76,5...82,5)
2nd speed 1/min: 1600
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/: 34,0...40,0
1000H.: (31,0...43,0)
4th speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 87,5...90,5
1000H.: (86,0...92,0)
5th speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm³/: 93,5...94,5
1000H.: (91,0...97,0)
6th speed 1/min: 500
Charge press. hPa: 1000

Del. quantity cm³/: 85,0...88,0
1000H.: (83,5...89,5)
7th speed 1/min: 500
Charge press. hPa: 250
Del. quantity cm³/: 79,0...80,0
1000H.: (76,5...82,5)
8th speed 1/min: 500
Del. quantity cm³/: 68,5...69,5
1000H.: (66,0...72,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1350
Del. quantity cm³/: 0...3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
Del. quantity cm³/: 22,0...26,0
1000H.: (19,0...29,0)
2nd speed 1/min: 400
Del. quantity cm³/: 2,5...9,5
1000H.: (2,5...9,5)
3rd speed 1/min: 430
Del. quantity cm³/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 150
Del. quantity cm³/: -
ind. 1000H: 90,0
2nd speed 1/min: 230
Del. quantity cm³/: -
max. 1000H: 60,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K mm : -
KF mm : 5,1...5,5
MS mm : 1,2...1,6
SVS max. mm : 5,3

XK mm : 17,0...19,0
XL mm : 14,2...17,6

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 3,6 K1
Edition : 03.08.88
replaces : 18.12.86
Calibrating oil : ISO 4113

Injection pump : VE 4/11F1500 R264
Type number : 0 460 414 040

Customer-specific information
Customer : IVECO-FIAT

Engine : 8040.05.200

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
pressure bar : 172...175

Perforated-plate
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC): ± 0.02 (0,04)

Indicator setting:
Piston stroke mm : 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000
Setting value mm: 3,5...3,9

Supply-pump pressure:

Speed 1/min: 1000
Setting value bar: 4,5...5,1

Full-load del. w/out charge press.:

Speed 1/min : 1000
Del.quantity cm³/
1000H.: 55,0...56,0
Dispersion cm³/: 3,5
1000H.: (3,5)

Low-idle speed regulation:

Speed 1/min: 325
Del.quantity cm³/
1000H.: 7,0...11,0
Dispersion cm³/: 3,5
1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1600
Del.quantity cm³/
1000H: 38,0...44,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 60,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 700
TD travel mm: 0,6...1,4
mm: (0,3...1,7)
2nd speed 1/min: 1000
TD travel mm: 3,5...3,9
mm: (3,0...4,4)
3rd speed 1/min: 1300
TD travel mm: 5,8...6,4
mm: (5,4...6,8)
4th speed 1/min: 1500
TD travel mm: 6,2...7,0
mm: (5,9...7,3)

Supply-pump pressure characteristic:

1st speed 1/min: 700
Supply-pump
pressure bar: 3,2...3,8
2nd speed 1/min: 1000
Supply-pump
pressure bar: 4,5...5,1

3rd speed 1/min: 1500
Supply-pump pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 700
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 1500
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1700
Del. quantity cm3/: 0,0...3,0
1000H.: (0,0...3,0)
2nd speed 1/min: 1660
Del. quantity cm3/: 18,0...26,0
1000H.: (17,0...27,0)
3rd speed 1/min: 1600
Del. quantity cm3/: 38,0...44,0
1000H.: (35,0...46,0)
4th speed 1/min: 1500
Del. quantity cm3/: 52,5...55,5
1000H.: (51,0...57,0)
5th speed 1/min: 1300
Del. quantity cm3/: 51,5...54,5
1000H.: (50,0...56,0)
6th speed 1/min: 1000
Del. quantity cm3/: 55,0...56,0
1000H.: (52,5...58,5)
7th speed 1/min: 700
Del. quantity cm3/: 53,0...56,0
1000H.: (51,5...57,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1500
Del. quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 325
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 325
Del. quantity cm3/: 7,0...11,0
1000H.: (5,0...13,0)
2nd speed 1/min: 360
Del. quantity cm3/: 1,5...7,5
1000H.: (0,5...8,5)

K04

3rd speed 1/min: 420
Del. quantity cm3/: 0,0...3,0
1000H.: (0,0...3,0)

Automatic starting fuel delivery:

1st speed 1/min: 150
Del. quantity cm3/: -
ind. 1000H.: 65,0

2nd speed 1/min: 230
Del. quantity cm3/: -
max. 1000H.: 25,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

| | | | |
|----------|----|---|-------------|
| K | mm | : | - |
| KF | mm | : | 5,2...5,5 |
| MS | mm | : | 1,7...2,1 |
| SVS max. | mm | : | 4,6 |
| XK | mm | : | 17,0...19,0 |
| XL | mm | : | 13,1...16,5 |

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA 3,6E1
Edition : 03.08.88
replaces : 03.85
Calibrating oil : ISO 4113

Injection pump : VE 6/11F1900 L178
Type number : 0 460 416 035

Customer-specific information
Customer : VM MOTORI

Engine : HR 692 HTI/9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC): +-0,02 (0,04)

Indicator setting:
Piston stroke mm: 1,0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 4,7...5,1

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 5,5...6,1

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del.quantity cm3/
1000H.: 66,0...67,0
Dispersion cm3/ : 3,5
1000H.: (4,0)

Full-load del. w/out charge press.:

Speed 1/min : 600
Del.quantity cm3/
1000H.: 47,5...48,5

Low-idle speed regulation:

Speed 1/min: 400
Del.quantity cm3/
1000H.: 18,0...22,0

Full-load speed regulation:

Speed 1/min: 2000
Charge press. hPa: 750
Del.quantity cm3/
1000H: 46,0...52,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 45,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 750
TD travel mm: 1,8...2,6
mm: (1,5...2,9)

2nd speed 1/min: 1500
Charge press. hPa: 750
TD travel mm: 4,7...5,1
mm: (4,2...5,6)

3rd speed 1/min: 1850
Charge press. hPa: 750
TD travel mm: 6,5...7,3
mm: (6,2...7,6)

Supply-pump pressure characteristic:

1st speed 1/min: 600

Charge press. hPa: 750
Supply-pump
pressure bar: 2,4...3,0
2nd speed 1/min: 1500
Charge press. hPa: 750
Supply-pump
pressure bar: 5,5...6,1
3rd speed 1/min: 1850
Charge press. hPa: 750
Supply-pump
pressure bar: 6,7...7,3

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 750
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1900
Charge press. hPa: 750
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600
Charge-air pressure-setting
point hPa: 300
LDA stroke mm: 4,0
Del. quantity cm³/: 53,0...54,0
1000H.: (50,1...56,9)
2nd speed 1/min: 2130
Charge press. hPa: 750
Del. quantity cm³/: 2,5...10,5
1000H.: (2,0...11,0)
3rd speed 1/min: 2000
Charge press. hPa: 750
Del. quantity cm³/: 46,0...52,0
1000H.: (44,5...53,5)
4th speed 1/min: 1850
Charge press. hPa: 750
Del. quantity cm³/: 61,0...64,0
1000H.: (59,9...65,1)
5th speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm³/: 66,0...67,0
1000H.: (63,9...69,1)
6th speed 1/min: 600
Charge press. hPa: 300
Del. quantity cm³/: 53,0...54,0
1000H.: (50,1...56,9)
7th speed 1/min: 600
Charge press. hPa: -
Del. quantity cm³/: 47,5...48,5
1000H.: (44,6...51,4)

Zero delivery (stop):

Idle delivery:

K06

1st speed 1/min: 400
Del. quantity cm³/: 18,0...22,0
1000H.: (15,5...24,5)
2nd speed 1/min: 500
Del. quantity cm³/: 7,5...12,5
1000H.: (5,5...14,5)
3rd speed 1/min: 600
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350
Del. quantity cm³/: -
ind. 1000H.: 42,0

2nd speed 1/min: 400
Del. quantity cm³/: -
max. 1000H.: 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | | |
|----------|----|---|-----------|
| K | mm | : | - |
| KF | mm | : | 6,2...6,6 |
| MS | mm | : | 0,8...1,2 |
| SVS max. | mm | : | 4,7 |

Remarks:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 2,5 D1
Edition : 26.07.88
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 8F2150 R316
Type number : 0 460 484 019

Customer-specific information
Customer : PSA

Engine : XUD7TE

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Indicator setting:
Piston stroke mm: 1,0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3,0...3,4

Supply-pump pressure:

K07

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value bar: 4,7...5,3

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 45,5...46,5
Dispersion cm3/ : 2,0
1000H.: (2,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 29,5...30,5
Dispersion cm3/ : 2,0
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 350
Del.quantity cm3/
1000H.: 8,0...12,0
Dispersion cm3/ : 2,0
1000H.: (2,5)
Residual-Delivery Setting
Speed 1/min: 550
Del.quantity cm3/
1000H.: 2,0...6,0

Full-load speed regulation:

Speed 1/min: 2400
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 13,0...19,0
Dispersion cm3/ : 3,0
1000H.: (4,0)

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 44,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000

TD travel mm: 1,0...1,8
mm: (0,7...2,1)
2nd speed 1/min: 1250
Charge press. hPa: 1000
TD travel mm: 3,0...3,4
mm: (2,7...3,7)
3rd speed 1/min: 2000
Charge press. hPa: 1000
TD travel mm: 6,0...6,8
mm: (5,6...7,0)

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3,5...4,1
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump pressure bar: 4,7...5,3
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2150
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting point hPa: 250
Del. quantity cm³/: 36,5...37,5
1000H.: (34,5...39,5)
2nd speed 1/min: 2500
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...6,0
1000H.: -
3rd speed 1/min: 2400
Charge press. hPa: 1000
Del. quantity cm³/: 13,0...19,0
1000H.: (12,0...20,0)
4th speed 1/min: 2300
Charge press. hPa: 1000
Del. quantity cm³/: 26,0...32,0
1000H.: (25,0...33,0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Del. quantity cm³/: 44,0...46,0
1000H.: (43,7...48,3)
6th speed 1/min: 1250
Charge press. hPa: 1000

Del. quantity cm³/: 45,5...46,5
1000H.: (44,7...49,3)
7th speed 1/min: 750
Charge press. hPa: 250
Del. quantity cm³/: 36,5...37,5
1000H.: (34,5...39,5)
8th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 42,5...44,5
1000H.: (41,2...45,8)
9th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 29,5...30,5
1000H.: (27,7...32,3)

Zero delivery (stop):

Idle delivery:

1st speed 1/min: 350
Del. quantity cm³/: 8,0...12,0
1000H.: (6,0...14,0)

High Idle:

Speed 1/min: 450
Del. quantity cm³/: 8,0...12,0
1000H.: (6,0...14,0)

Residual:

Speed 1/min: 550
Del. quantity : 2,0...6,0
1000H.: (0,0...8,0)

Automatic starting fuel delivery:

1st speed 1/min: 250
Del. quantity cm³/: -
ind. 1000H: 45,0
2nd speed 1/min: 350
Del. quantity cm³/: -
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4
KF mm : 5,1...5,5
MS mm : 1,2...1,6
SVS max. mm : -

Remarks:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6 V9
Edition : 02.08.88
replaces : 03.11.87
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2400 R138
Type number : 0 460 494 131

Customer-specific information
Customer : VW

Engine : 086-1.6L

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 2,9...3,3

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,3...4,9

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 31,5...32,5
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 475
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,0
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2600
Del.quantity cm3/
1000H.: 12,0...16,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 1,3...2,1
mm: (1,0...2,4)
2nd speed 1/min: 1500
TD travel mm: 2,9...3,3
mm: (2,4...3,8)
3rd speed 1/min: 2400
TD travel mm: 6,1...6,9
mm: (5,8...7,2)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 2,2...2,8
2nd speed 1/min: 1500
Supply-pump
pressure bar: 4,3...4,9
3rd speed 1/min: 2400
Supply-pump
pressure bar: 6,4...7,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
Oveflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2400

Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 2600
Del. quantity cm³/: 12,0...16,0
1000H.: (10,0...18,0)
3rd speed 1/min: 2525
Del. quantity cm³/: 18,5...28,5
1000H.: (17,5...29,5)
4th speed 1/min: 2400
Del. quantity cm³/: 27,0...29,0
1000H.: (25,8...30,2)
5th speed 1/min: 1500
Del. quantity cm³/: 31,5...32,5
1000H.: (29,8...34,2)
6th speed 1/min: 600
Del. quantity cm³/: 21,0...24,0
1000H.: (19,5...25,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 475
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 475
Del. quantity cm³/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 650
Del. quantity cm³/: 0,0...7,6
1000H.: -
3rd speed 1/min: 1200
Del. quantity cm³/: 0,0...5,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Del. quantity cm³/: -
ind. 1000H: 18,0

2nd speed 1/min: 500
Del. quantity cm³/: -
max. 1000H : 23,5

Shutoff electromagnet:

Cut-in
min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | |
|----------|----|-------------|
| K | mm | : 3,1...3,5 |
| KF | mm | : 5,6...6,0 |
| MS | mm | : 1,2...1,6 |
| SVS max. | mm | : 2,3 |

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6 W2
Edition : 02.08.88
replaces : 03.11.87
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2400 R138-1
Type number : 0 460 494 140

Customer-specific information
Customer : VW

Engine : 086-1.6L

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 2,9...3,3

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 4,3...4,9

Full-load del. w/out charge press.:

Speed 1/min : 2400
Del.quantity cm3/
1000H.: 27,0...29,0
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 450
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,0
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2600
Del.quantity cm3/
1000H.: 12,0...16,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 1,3...2,1
mm: (1,0...2,4)
2nd speed 1/min: 1500
TD travel mm: 2,9...3,3
mm: (2,4...3,8)
3rd speed 1/min: 2400
TD travel mm: 6,1...6,9
mm: (5,8...7,2)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 2,2...2,8
2nd speed 1/min: 1500
Supply-pump
pressure bar: 4,3...4,9
3rd speed 1/min: 2400
Supply-pump
pressure bar: 6,4...7,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2400

Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 2600
Del. quantity cm³/: 12,0...16,0
1000H.: (10,0...18,0)
3rd speed 1/min: 2525
Del. quantity cm³/: 18,5...28,5
1000H.: (17,5...29,5)
4th speed 1/min: 2400
Del. quantity cm³/: 27,0...29,0
1000H.: (25,8...30,2)
5th speed 1/min: 1500
Del. quantity cm³/: 31,5...32,5
1000H.: (29,8...34,2)
6th speed 1/min: 600
Del. quantity cm³/: 21,0...24,0
1000H.: (19,5...25,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 2400
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 450
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 450
Del. quantity cm³/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 650
Del. quantity cm³/: 0,0...5,0
1000H.: -
3rd speed 1/min: 1200
Del. quantity cm³/: 0,0...7,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400
Del. quantity cm³/: -
ind. 1000H: 18,0
2nd speed 1/min: 500
Del. quantity cm³/: -
max. 1000H : 23,5

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,1...3,5
KF mm : 5,6...6,0
MS mm : 1,2...1,6
SVS max. mm : 1,8

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA 2,0F
Edition : 03.08.88
replaces : 10.85
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2150 L202
Type number : 0 460 494 167

Customer-specific information
Customer : VM

Engine : HR 488 HJ

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery

Indicator setting:
Piston stroke mm: 1,0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 800
Setting value mm: 4,3...4,7

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 800

Setting value bar: 4,5...5,1

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 800
Del. quantity cm3/
1000H.: 52,5...53,5
Dispersion cm3/ : 3,0
1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 750
Del. quantity cm3/
1000H.: 39,5...40,5

Low-idle speed regulation:

Speed 1/min: 400
Del. quantity cm3/
1000H.: 11,0...15,0
Dispersion cm3/ : 2,5
1000H.: (2,5)

Full-load speed regulation:

Speed 1/min: 2420
Charge press. hPa: 800
Del. quantity cm3/
1000H: 12,0...18,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm3/1000H.: 36,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 800
TD travel mm: 1,3...2,1
mm: (1,0...2,4)
2nd speed 1/min: 1500
Charge press. hPa: 800
TD travel mm: 4,3...4,7
mm: (3,8...5,2)
3rd speed 1/min: 2150
Charge press. hPa: 800
TD travel mm: 7,6...8,4
mm: (7,3...8,7)

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 800
Supply-pump pressure bar: 2,0...2,6
2nd speed 1/min: 1000
Charge press. hPa: 800
Supply-pump pressure bar: 2,8...3,4
3rd speed 1/min: 1500
Charge press. hPa: 800
Supply-pump pressure bar: 4,5...5,1
4th speed 1/min: 2150
Charge press. hPa: 800
Supply-pump pressure bar: 6,7...7,3

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: 800
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 2150
Charge press. hPa: 800
Overflow quantity cm³/10s: 55...138

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting point hPa: 400
LDA stroke mm: 5,7
Del. quantity cm³/: 41,5...43,5
1000H.: (40,0...45,0)
2nd speed 1/min: 2550
Charge press. hPa: 800
Del. quantity cm³/: 0,0...2,0
1000H.: -
3rd speed 1/min: 2420
Charge press. hPa: 800
Del. quantity cm³/: 12,0...18,0
1000H.: (11,0...19,0)
4th speed 1/min: 2150
Charge press. hPa: 800
Del. quantity cm³/: 42,3...45,3
1000H.: (41,6...46,0)
5th speed 1/min: 1500
Charge press. hPa: 800
Del. quantity cm³/: 52,5...53,5
1000H.: (51,0...55,0)
6th speed 1/min: 750
Charge press. hPa: 800
Del. quantity cm³/: 51,5...54,5
1000H.: -
7th speed 1/min: 750

Charge press. hPa: 400
Del. quantity cm³/: 41,5...43,5
1000H.: (40,0...45,0)
8th speed 1/min: 750
Del. quantity cm³/: 39,5...40,5
1000H.: (37,5...42,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del. quantity cm³/: 11,0...15,0
1000H.: (8,0...18,0)
2nd speed 1/min: 500
Del. quantity cm³/: 2,0...8,0
1000H.: (0,0...10,0)
3rd speed 1/min: 700
Del. quantity cm³/: 0,0...4,0
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 400
Del. quantity cm³/: -
ind. 1000H: 37,0
2nd speed 1/min: 500
Del. quantity cm³/: -
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | |
|----------|----|---------------|
| K | mm | : 3,2...3,4 |
| KF | mm | : 5,3...5,7 |
| MS | mm | : 0,6...1,0 |
| SVS max. | mm | : 1,7 |
| XK | mm | : 17,0...19,0 |
| XL | mm | : 8,8...12,2 |

Remarks:

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6 X2
Edition : 02.08.88
replaces : 17.07.87
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2250 R211
Type number : 0 460 494 172

Customer-specific information
Customer : VW

Engine : 086-1.6L

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Indicator setting:
Piston stroke mm : 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000
Charge press. hPa: 750
Setting value mm: 1,8...2,6

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 5,6...6,2

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm³/
1000H.: 42,0...43,0
Dispersion cm³/
1000H.: 2,5
1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 700
Del. quantity cm³/
1000H.: 26,0...27,0

Low-idle speed regulation:

Speed 1/min: 425
Del. quantity cm³/
1000H.: 9,0...11,0
Dispersion cm³/
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 550
Del. quantity cm³/
1000H.: 2,0...3,0

Full-load speed regulation:

Speed 1/min: 2525
Charge press. hPa: 750
Del. quantity cm³/
1000H.: 10,0...14,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 35,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 750
TD travel mm: 1,8...2,6
mm: (1,5...2,9)
2nd speed 1/min: 1500
Charge press. hPa: 750
TD travel mm: 3,8...4,2
mm: (3,3...4,7)
3rd speed 1/min: 1800
Charge press. hPa: 750

TD travel mm: 4,8...5,6
mm: (4,5...5,9)
4th speed 1/min: 2250
Charge press. hPa: 750
TD travel mm: 6,1...6,9
mm: (5,8...7,2)

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 750
Supply-pump pressure bar: 3,3...3,9
2nd speed 1/min: 1500
Charge press. hPa: 750
Supply-pump pressure bar: 5,6...6,2
3rd speed 1/min: 2250
Charge press. hPa: 750
Supply-pump pressure bar: 7,7...8,3

Overflow quantity at overflow valve:

1st speed 1/min: 700
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2250
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900
Charge-air pressure-setting point hPa: 300
LDA stroke mm: 4,5
Del. quantity cm³/: 32,5...33,5
1000H.: (30,0...36,0)
2nd speed 1/min: 2650
Charge press. hPa: 750
Del. quantity cm³/: 0,0...6,0
1000H.: -
3rd speed 1/min: 2525
Charge press. hPa: 750
Del. quantity cm³/: 10,0...14,0
1000H.: (8,0...16,0)
4th speed 1/min: 2425
Charge press. hPa: 750
Del. quantity cm³/: 23,5...33,5
1000H.: (22,5...34,5)
5th speed 1/min: 2250
Charge press. hPa: 750
Del. quantity cm³/: 36,3...38,3
1000H.: (35,1...39,5)
6th speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm³/: 42,0...43,0
1000H.: (40,3...44,7)
7th speed 1/min: 900

Charge press. hPa: 300
Del. quantity cm³/: 32,5...33,5
1000H.: (30,0...36,0)
8th speed 1/min: 700
Charge press. hPa: 750
Del. quantity cm³/: 34,5...37,5
1000H.: (33,0...39,0)
9th speed 1/min: 700
Charge press. hPa: -
Del. quantity cm³/: 26,0...27,0
1000H.: (23,5...29,5)
10th speed 1/min: 600
Charge press. hPa: -
Del. quantity cm³/: 24,5...29,5
1000H.: (22,0...32,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 425
Del. quantity cm³/: 9,0...11,0
1000H.: (4,5...15,5)
2nd speed 1/min: 400
Del. quantity cm³/: 13,0...17,0
1000H.: (9,5...20,5)

High Idle:

Speed 1/min: 525
Del. quantity cm³/: 7,0...9,0
1000H.: (3,0...13,0)

Residual:

Speed 1/min: 550
Del. quantity : 2,0...3,0
1000H.: (0,0...5,5)

Automatic starting fuel delivery:

1st speed 1/min: 150
Del. quantity cm³/: -
ind. 1000H: 35,0
2nd speed 1/min: 350
Del. quantity cm³/: -
max. 1000H : 40,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | |
|----------|----|-------------|
| K | mm | : K1 |
| KF | mm | : - |
| MS | mm | : 1,1...1,5 |
| SVS max. | mm | : 3,1 |

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6W17
Edition : 03.08.88
replaces : 08.12.86
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2400 R221
Type number : 0 460 494 179

Customer-specific information
Customer : VW

Engine : 086-1.6L

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Indicator setting:
Piston stroke mm: 1,0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 2,1...2,5

Supply-pump pressure:

Speed 1/min: 1250

K20

Setting value bar: 4,0...4,6

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 31,5...32,5
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 11,0...13,0
Dispersion cm3/: 2,0
1000H.: (3,0)

Residual-Delivery Setting

Speed 1/min: 550
Del.quantity cm3/
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2600
Del.quantity cm3/
1000H.: 12,0...16,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 1,0...1,8
mm: (0,7...2,1)
2nd speed 1/min: 1250
TD travel mm: 2,1...2,5
mm: (1,6...3,0)
3rd speed 1/min: 1800
TD travel mm: 4,2...5,0
mm: (3,9...5,3)
4th speed 1/min: 2400
TD travel mm: 6,1...6,9
mm: (5,8...7,2)

Supply-pump pressure characteristic:

1st speed 1/min: 600

Supply-pump
pressure bar: 2,1...2,7
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4,0...4,6
3rd speed 1/min: 2400
Supply-pump
pressure bar: 7,3...7,9

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2400
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Del. quantity cm3/: 0,0...4,0
1000H.: -
2nd speed 1/min: 2600
Del. quantity cm3/: 12,0...16,0
1000H.: (10,0...18,0)
3rd speed 1/min: 2500
Del. quantity cm3/: 19,0...29,0
1000H.: (18,0...30,0)
4th speed 1/min: 2400
Del. quantity cm3/: 27,0...29,0
1000H.: (25,8...30,2)
5th speed 1/min: 1500
Del. quantity cm3/: 31,5...32,5
1000H.: (29,8...34,2)
6th speed 1/min: 600
Del. quantity cm3/: 21,0...24,0
1000H.: (19,5...25,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max, 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm3/: 11,0...13,0
1000H.: (8,0...16,0)

High Idle:

Speed 1/min: 525
Del. quantity cm3/: 7,0...9,0
1000H.: (4,0...12,0)

Residual:

Speed 1/min: 550
Del. quantity : 2,5...4,5
1000H.: (1,0...6,0)

Automatic starting fuel delivery:

1st speed 1/min: 180
Del. quantity cm3/: -
ind. 1000H.: 35,0

2nd speed 1/min: 380
Del. quantity cm3/: -
max. 1000H.: 30,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | |
|----|----|---------------|
| K | mm | : 3,2...3,4 |
| KF | mm | : 5,6...6,0 |
| MS | mm | : 1,2...1,6 |
| XK | mm | : 17,0...19,0 |
| XL | mm | : 9,8...13,2 |

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6W15
Edition : 02.08.88
replaces : 27.10.87
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2400 R224
Type number : 0 460 494 185

Customer-specific information
Customer : VW

Engine : 086-1.6L

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Indicator setting:
Piston stroke mm: 1,0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 2,1...2,5

Supply-pump pressure:

Speed 1/min: 1250

K22

Setting value bar: 4,0...4,6

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 31,5...32,5
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 11,0...13,0
Dispersion cm3/: 2,0
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 550
Del.quantity cm3/
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2600
Del.quantity cm3/
1000H.: 12,0...16,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 1,0...1,8
mm: (0,7...2,1)
2nd speed 1/min: 1250
TD travel mm: 2,1...2,5
mm: (1,6...3,0)
3rd speed 1/min: 1800
TD travel mm: 4,2...5,0
mm: (3,9...5,3)
4th speed 1/min: 2400
TD travel mm: 6,1...6,9
mm: (5,8...7,2)

Supply-pump pressure characteristic:

1st speed 1/min: 600

Supply-pump
pressure bar: 2,1...2,7
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4,0...4,6
3rd speed 1/min: 2400
Supply-pump
pressure bar: 7,3...7,9

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2400
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Del. quantity cm3/: 0,0...4,0
1000H.: -
2nd speed 1/min: 2600
Del. quantity cm3/: 12,0...16,0
1000H.: (10,0...18,0)
3rd speed 1/min: 2500
Del. quantity cm3/: 19,0...29,0
1000H.: (18,0...30,0)
4th speed 1/min: 2400
Del. quantity cm3/: 27,0...29,0
1000H.: (25,8...30,2)
5th speed 1/min: 1500
Del. quantity cm3/: 31,5...32,5
1000H.: (29,8...34,2)
6th speed 1/min: 600
Del. quantity cm3/: 21,0...24,0
1000H.: (19,5...25,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm3/: 11,0...13,0
1000H.: (8,0...16,0)

High Idle:

Speed 1/min: 525
Del. quantity cm3/: 7,0...9,0
1000H.: (4,0...12,0)

Residual:

Speed 1/min: 550
Del. quantity : 2,5...3,5
1000H.: (1,0...5,0)

Automatic starting fuel delivery:

1st speed 1/min: 180
Del. quantity cm3/: -
ind. 1000H.: 35,0

2nd speed 1/min: 380
Del. quantity cm3/: -
max. 1000H.: 30,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,6...6,0
MS mm : 1,2...1,6
SVS max. mm : 3,4
XK mm : 17,0...19,0
XL mm : 9,8...13,2

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,7P2
Edition : 03.08.88
replaces : 18.12.86
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R256
Type number : 0 460 494 204

Customer-specific information
Customer : FIAT-AUTO

Engine : X8/34

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Indicator setting:
Piston stroke mm : 1,0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 4,3...4,7

Supply-pump pressure:

Speed 1/min: 1500

K24

Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 29,5...30,5
Dispersion cm3/: 2,5
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 390
Del.quantity cm3/
1000H.: 10,0...14,0
Dispersion cm3/: 2,5
1000H.: (2,5)

Full-load speed regulation:

Speed 1/min: 2450
Del.quantity cm3/
1000H.: 19,0...25,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 55,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 1,2...2,0
mm: (0,9...2,3)
2nd speed 1/min: 1500
TD travel mm: 4,3...4,7
mm: (3,8...5,2)
3rd speed 1/min: 2300
TD travel mm: 7,4...8,2
mm: (7,1...8,5)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3,1...3,7
2nd speed 1/min: 1500
Supply-pump
pressure bar: 5,3...5,9
bar: (5,1...6,1)
3rd speed 1/min: 2300

Supply-pump
pressure bar: 7,1...7,7

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2300
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2900
Del. quantity cm³/: 0,0...1,6
1000H.: -
2nd speed 1/min: 2650
Del. quantity cm³/: 1,5...8,5
1000H.: (0,0...10,0)
3rd speed 1/min: 2450
Del. quantity cm³/: 19,0...25,0
1000H.: (18,0...26,0)
4th speed 1/min: 2300
Del. quantity cm³/: 30,8...33,2
1000H.: (29,7...34,3)
5th speed 1/min: 1500
Del. quantity cm³/: 29,5...30,5
1000H.: (27,3...32,3)
6th speed 1/min: 1000
Del. quantity cm³/: 29,6...32,0
1000H.: (28,5...33,1)
7th speed 1/min: 600
Del. quantity cm³/: 30,5...33,5
1000H.: (29,0...35,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 390
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 390
Del. quantity cm³/: 10,0...14,0
1000H.: (7,0...17,0)
2nd speed 1/min: 440
Del. quantity cm³/: 0,0...6,0
1000H.: (0,0...8,5)
3rd speed 1/min: 500
Del. quantity cm³/: 0,0...3,0
1000H.: (0,0...3,0)

Automatic starting fuel delivery:

1st speed 1/min: 300
Del. quantity cm³/: -
ind. 1000H.: 48,0

2nd speed 1/min: 400
Del. quantity cm³/: -
max. 1000H.: 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | |
|----------|----|---------------|
| K | mm | : 3,2...3,4 |
| KF | mm | : 5,6...6,0 |
| MS | mm | : 1,6...2,0 |
| SVS max. | mm | : 4,7 |
| XK | mm | : 17,0...19,0 |
| XL | mm | : 9,8...13,2 |

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 G
Edition : 03.08.88
replaces : 16.12.86
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R272
Type number : 0 460 494 211

Customer-specific information
Customer : PSA

Engine : XUD 9A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 0,35

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC): -

Indicator setting:
Piston stroke mm: 0,3
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 3,0...3,4

Supply-pump pressure:

Speed 1/min: 1250

K26

Setting value bar: 3,9...4,5

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del.quantity cm3/
1000H.: 30,3...31,3
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 8,0...10,0
Dispersion cm3/: 3,0
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 550
Del.quantity cm3/
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2500
Del.quantity cm3/
1000H.: 19,0...25,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 45,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 0,6...1,4
mm: (0,3...1,7)
2nd speed 1/min: 1250
TD travel mm: 3,0...3,4
mm: (2,5...3,9)
3rd speed 1/min: 2000
TD travel mm: 6,7...7,5
mm: (6,4...7,8)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 2,6...3,2
2nd speed 1/min: 1250

Supply-pump
pressure bar: 3,9...4,5
3rd speed 1/min: 2000
Supply-pump
pressure bar: 5,9...6,5

Overflow quantity at overflow valve:

1st speed 1/min: 800
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2300
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2650
Del. quantity cm3/: 0,0...10,0
1000H.: -
2nd speed 1/min: 2500
Del. quantity cm3/: 19,0...25,0
1000H.: (18,0...26,0)
3rd speed 1/min: 2250
Del. quantity cm3/: 32,3...35,3
1000H.: (31,6...36,0)
4th speed 1/min: 1250
Del. quantity cm3/: 30,3...31,3
1000H.: (28,6...33,0)
5th speed 1/min: 800
Del. quantity cm3/: 31,3...34,3
1000H.: (29,8...35,8)
6th speed 1/min: 500
Del. quantity cm3/: 31,3...34,3
1000H.: (29,8...35,8)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 2300
Del. quantity cm3/: -
1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm3/: 8,0...10,0
1000H.: (5,0...13,0)

High Idle:

Speed 1/min: 470
Del. quantity cm3/: 8,0...10,0
1000H.: (5,0...13,0)

Residual:

Speed 1/min: 550

Del. quantity : 2,5...3,5
1000H.: (0,0...7,0)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm3/: -
ind. 1000H.: 40,0

2nd speed 1/min: 300
Del. quantity cm3/: -
max. 1000H.: 35,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,3...5,7
MS mm : 1,2...1,6
SVS max. mm : -

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,3C
Edition : 26.07.88
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2100 R303
Type number : 0 460 494 225

Customer-specific information
Customer : FIAT-AUTO

Engine : X8/45S

Power k: 66

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery

Indicator setting:
Piston stroke mm: 1,0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 5,5...5,9
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value bar: 5,3...5,9
KSB solenoid-operated
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 52,0...53,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/ : 2,5
1000H.: (2,5)

Full-load del. w/out charge press.:

Speed 1/min : 600
Del.quantity cm3/
1000H.: 40,0...41,0
KSB solenoid-operated
valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 400
Del.quantity cm3/
1000H.: 11,0...15,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/ : 2,5
1000H.: (2,5)

Residual-Delivery Setting

Speed 1/min: 700
Del.quantity cm3/
1000H.: 4,0...6,0
KSB-Solenoid-Operated
valve Volt : 12,0

Full-load speed regulation:

Speed 1/min: 2300
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 30,0...36,0
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 55,0
KSB solenoid-operated
valve volt: 12,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
TD travel mm: 3,2...4,8
mm: (2,5...5,5)

KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 2,5...5,5
mm: -

KSB solenoid-operated
valve volt: -
3rd speed 1/min: 800
Charge press. hPa: 1000
TD travel mm: 1,8...2,6
mm: (1,5...2,9)

KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 5,5...5,9
mm: (5,2...6,2)

KSB solenoid-operated
valve volt: 12,0
5th speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 8,2...9,0
mm: (5,9...9,3)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 1000
Supply-pump pressure bar: 3,2...3,8

KSB solenoid-operated
valve volt: 12,0

2nd speed 1/min: 1500
Charge press. hPa: 1000

Supply-pump pressure bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

3rd speed 1/min: 2100
Charge press. hPa: 1000

Supply-pump pressure bar: 7,0...7,6

KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Overflow : 41...83
quantity cm³/10s: (26...98)

2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting
point hPa: 400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 43,5...44,5
1000H.: (41,5...46,5)

2nd speed 1/min: 2650
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 0,0...7,0
1000H.: -

3rd speed 1/min: 2450
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 12,0...20,0
1000H.: (11,0...21,0)

4th speed 1/min: 2300
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 30,0...36,0
1000H.: (29,0...37,0)

5th speed 1/min: 2100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 50,5...53,5
1000H.: (49,5...54,5)

6th speed 1/min: 1500
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 52,0...53,0
1000H.: (50,5...54,5)

7th speed 1/min: 800
Charge press. hPa: 1000

KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 55,5...58,5
1000H.: -
8th speed 1/min: 800
Charge press. hPa: 400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 43,5...44,5
1000H.: (41,5...46,5)
9th speed 1/min: 800
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 37,0...39,0
1000H.: (35,5...40,5)
10th speed 1/min: 600
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 40,0...41,0
1000H.: (38,0...43,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 11,0...15,0
1000H.: (9,5...16,5)

Residual:

Speed 1/min: 700
Del. quantity : 4,0...6,0
1000H.: (3,0...7,0)
KSB-Solenoid-operated
valve Volt: 12,0

Automatic starting fuel delivery:

1st speed 1/min: 220
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
ind. 1000H.: 57,0

2nd speed 1/min: 300
KSB solenoid-operated
valve volt: 12,0

Del. quantity cm³/: -
max. 1000H.: 48,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | |
|----|----|---------------|
| K | mm | : 3,1...3,5 |
| KF | mm | : 5,6...6,0 |
| MS | mm | : 1,0...1,4 |
| XK | mm | : 18,8...20,8 |
| XL | mm | : 10,0...13,4 |

Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 0
Edition : 26.07.88
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2350 R309
Type number : 0 460 494 228

Customer-specific information
Customer : RNUR

Engine : J8S-736

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Indicator setting:
Piston stroke mm : 1,0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1125
Setting value mm: 2,6...3,0

Supply-pump pressure:

Speed 1/min: 1125

L03

Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 1125
Del.quantity cm3/
1000H.: 36,5...37,5
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 400
Del.quantity cm3/
1000H.: 6,0...10,0
Dispersion cm3/: 2,5
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 500
Del.quantity cm3/
1000H.: 1,0...5,0

Full-load speed regulation:

Speed 1/min: 2500
Del.quantity cm3/
1000H: 20,0...26,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 52,0

Load-dependent start of delivery:

Speed 1/min: 1125

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 0,7...1,5
mm: (0,4...1,8)
2nd speed 1/min: 1125
TD travel mm: 2,6...3,0
mm: (2,1...3,5)
3rd speed 1/min: 2000
TD travel mm: 6,9...7,7
mm: (6,6...8,0)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 3,1...3,7
2nd speed 1/min: 1125

Supply-pump
pressure bar: 4,2...4,8
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6,5...7,1

Overflow quantity at overflow valve:

1st speed 1/min: 800
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2250
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2750
Del. quantity cm3/: 0,0...5,0
1000H.: -
2nd speed 1/min: 2650
Del. quantity cm3/: 2,0...10,0
1000H.: (1,0...11,0)
3rd speed 1/min: 2500
Del. quantity cm3/: 20,0...26,0
1000H.: (19,0...27,0)
4th speed 1/min: 2250
Del. quantity cm3/: 34,3...36,3
1000H.: (33,0...37,6)
5th speed 1/min: 1750
Del. quantity cm3/: 34,0...36,0
1000H.: (32,7...37,3)
6th speed 1/min: 1125
Del. quantity cm3/: 36,5...37,5
1000H.: (34,7...39,3)
7th speed 1/min: 800
Del. quantity cm3/: 33,5...36,5
1000H.: (32,7...37,3)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del. quantity cm3/: 6,0...10,0
1000H.: (4,0...12,0)

High Idle:

Speed 1/min: 500
Del. quantity cm3/: 7,7...11,7
1000H.: (5,7...13,7)

Residual:

Speed 1/min: 500
Del. quantity : 1,0...5,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 210
Del. quantity cm3/: -
ind. 1000H: 45,0

2nd speed 1/min: 310
Del. quantity cm3/: -
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | |
|----------|----|---------------|
| K | mm | : 3,2...3,4 |
| KF | mm | : 5,3...5,7 |
| MS | mm | : 1,3...1,7 |
| SVS max. | mm | : - |
| XK | mm | : 17,0...19,0 |
| XL | mm | : 8,7...12,1 |

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,9 D1
Edition : 03.08.88
replaces : 16.12.86
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 L157-1
Type number : 0 460 494 238

Customer-specific information
Customer : FIAT-AUTO

Engine : M707

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery

Indicator setting:
Piston stroke mm: 1,0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 4,4...4,8

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 5,1...5,7

Full-load del. w/out charge press.:

Speed 1/min : 1500
Del.quantity cm3/
1000H.: 34,5...35,5
Dispersion cm3/: 2,5
1000H.: (2,0)

Low-idle speed regulation:

Speed 1/min: 400
Del.quantity cm3/
1000H.: 9,0...13,0
Dispersion cm3/: 2,0
1000H.: (2,0)

Full-load speed regulation:

Speed 1/min: 2400
Del.quantity cm3/
1000H.: 24,0...30,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 55,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 0,7...1,5
mm: (0,4...1,8)
2nd speed 1/min: 1500
TD travel mm: 4,4...4,8
mm: (3,9...5,3)
3rd speed 1/min: 2300
TD travel mm: 8,2...9,0
mm: (7,9...9,3)

Supply-pump pressure characteristic:

1st speed 1/min: 400
Supply-pump
pressure bar: 2,5...3,1
2nd speed 1/min: 1500
Supply-pump
pressure bar: 5,1...5,7
3rd speed 1/min: 2300
Supply-pump
pressure bar: 6,9...7,5

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2300
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2600
Del. quantity cm3/: 3,0...9,0
1000H.: (1,0...11,0)
2nd speed 1/min: 2500
Del. quantity cm3/: 14,0...20,0
1000H.: (13,0...21,0)
3rd speed 1/min: 2400
Del. quantity cm3/: 24,0...30,0
1000H.: (23,0...31,0)
4th speed 1/min: 2300
Del. quantity cm3/: 34,3...36,7
1000H.: (33,2...37,8)
5th speed 1/min: 1500
Del. quantity cm3/: 34,5...35,5
1000H.: (32,7...37,3)
6th speed 1/min: 1000
Del. quantity cm3/: 36,3...38,9
1000H.: (35,3...39,9)
7th speed 1/min: 600
Del. quantity cm3/: 35,5...38,5
1000H.: (34,0...40,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del. quantity cm3/: 9,0...13,0
1000H.: (7,0...15,0)
2nd speed 1/min: 450
Del. quantity cm3/: 0,5...6,5
1000H.: (0,0...7,0)
3rd speed 1/min: 500
Del. quantity cm3/: 0,0...2,0
1000H.: (0,0...2,0)

Automatic starting fuel delivery:

1st speed 1/min: 300
Del. quantity cm3/: -
ind. 1000H.: 50,0

2nd speed 1/min: 450
Del. quantity cm3/: -
max. 1000H.: 46,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

| | | |
|----|----|---------------|
| K | mm | : 3,2...3,4 |
| KF | mm | : 5,6...6,0 |
| MS | mm | : 1,3...1,7 |
| XK | mm | : 17,0...19,0 |
| XL | mm | : 12,0...15,4 |

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 2,0 r4
Edition : 04.11.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 074 903

Injection pump
Pump designation : PES4M55C32ORS169
EP type number : 0 410 054 959
Governor
Governor design. : RSF360/2300M60-9
Governor no. : 0 420 021 109

Customer-spec. information
Customer : DB

Engine : OM601-ECE

1st version kW : 53.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 20.00...22.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 3.2...3.3

100 s : (3.1...3.4)

Spread cm³ : 0.2

100 s : (0.3)

2nd speed rpm : 335.0

Rack travel in mm : 6.8...7.0

Del. quantity cm³/ : 0.5...0.6

100 s : (0.4...0.9)

Spread cm³ : 0.1

100 s : (0.15)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h : 1100

Del. quantity : 32.0...33.0

1000 : (31.0...34.0)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees : 50...0

3rd rack travel in : 9.0...9.4

Speed rpm : 2500

4th rack travel in : 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1.9...2.0

LOW IDLE 1

Control lever

position degrees : 34...38

Setting point w/out bumper spring

Speed rpm : 335
Rack travel in mm : 6.9

Testing:

Speed rpm : 225
Minimum rack travel: 9.50
Speed rpm : 335
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.50
Speed rpm : 610...710
Speed rpm : 1000
Maximum rack travel: 2.00

SET IDLE AUXILIARY SPRING

Speed rpm : 400
Rack travel in mm : 5.40...5.60
: (5.30...5.70)

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000
Rack travel in m: 12.80...12.90
2nd speed rpm : 1800
Rack travel in m: 12.20...12.40
3rd speed rpm : 2200
Rack travel in m: 11.80...12.00

Aneroid/Altitude Compensator Test

1st version

Pressure hPa : 950
Rack travel mm : 0.00...0.20

1st pressure hPa : 900
Rack travel in m: 0.50...0.70
2nd pressure hPa : 750
Rack travel in m: 1.80...2.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1800
Del. quantity cm³/ : 34.0...35.5
1000 s: (33.0...36.5)
Spread cm³ : 2.50
1000 s: (3.)
Aneroid pressure h: 1100
Speed rpm : 2200
Del. quantity cm³/ : 33.5...35.5
1000 s: (32.5...36.5)
Spread cm³ : 2.50
1000 s: (3.00)

STARTING FUEL DELIVERY

LO8

Speed rpm : 100
Del. quantity cm³/ : 52.0...0.0
1000 s: (52.0...0.0)
Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version

Aneroid pressure h: 1100
Speed rpm : 2500
Rack travel in mm : 9.00...9.40
Del. quantity cm³/ : 22.0...26.0
1000 s: (21.0...27.0)
Spread cm³ : 2.50
1000 s: (3.00)

LOW IDLE

Speed rpm : 335
Rack travel in mm : 6.80...7.00
Del. quantity cm³/ : 5.0...6.0
1000 s: (4.5...9.0)
Spread cm³ : 1.00
1000 s: (1.50)

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Control lever at idle stop

Speed rpm : 360
Rack travel in mm : (13.1...14.5)
Del. quantity cm³/ : -
1000 s: (29.0...37.0)

Current A : 1.8
Control lever at full-load stop
Speed rpm : 2950
Rack travel in mm : 0.00...1.00
Current

short-duration A : 3.00

Starting test

Speed rpm : 100
Del. quantity cm³/ : -
min. 1000 s: 55.00

Remarks:

Start-of-delivery spacing (difference)
between max/min value 1° cam angle
maximum.

SETTING OF FBG

-Setting and locking of FBG according
to start-of-delivery average of all
cylinders 19.3...19.7° (19.2...19.8°).
Cam angle according to cyl. 1.

CHECKING THE IDLE-SPEED AUXILIARY
SPRING CUTOFF

- Control-lever position 49° , max.
0.2 mm control-rod travel deduction
allowable after switchover point (of
starting cam) up to 1000 1/min.
- Control-lever position 46.5° ,
control-rod travel deduction must be
greater than 0.2 mm after switchover
point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE

- Control lever at idle stop.
- With $n = 335$ 1/min. and $p_u = 450$ mbar,
control rod must move quickly to
control-rod travel = 0 mm

Pin projection = 16.60...16.70 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 2,0 r5
Edition : 04.11.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 074 904

Injection pump
Pump designation : PES4M55C320RS169
EP type number : 0 410 054 959
Governor
Governor design. : RSF375/2300M56-6
Governor no. : 0 420 021 110

Customer-spec. information
Customer : DB

Engine : OM601-ECE

1st version kW : 53.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 20.00...22.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 3.2...3.3

100 s: (3.1...3.4)

Spread cm³ : 0.2

100 s: (0.3)

2nd speed rpm : 375.0

Rack travel in mm : 6.9...7.1

Del. quantity cm³/ : 0.5...0.6

100 s: (0.4...0.9)

Spread cm³ : 0.1

100 s: (0.15)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del. quantity : 32.0...33.0

1000 : (31.0...34.0)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 9.00...9.40

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1.9...2.0

LOW IDLE 1

Control lever

position degrees: 34...38

Setting point w/out bumper spring

allowable after switchover point (of starting cam) up to 1000 1/min.
Control-lever position 46.5° ,
control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.

With $n = 375$ 1/min. and $p_u = 450$ mbar,
control rod must move quickly to
control-rod travel = 0 mm

Pin projection = 16.60...16.70 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 2,5 H
Edition : 15.11.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 075 948
Injection pump
Pump designation : PESSM55C320RS173
EP type number : 0 410 055 976
Governor
Governor design. : RSF350/2300M71-1
Governor no. : 0 420 021 118

Customer-spec. information
Customer : DB

Engine : OM602-Abgasl.

1st version kW : 64.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80
: (1.65...1.85)
Rack travel in mm : 20.00...22.00
Firing order : 1- 2- 4- 5- 3

L13

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 3.1...3.2

100 s: (3.0...3.3)

Spread cm³ : 0.2

100 s: (0.3)

2nd speed rpm : 350

Rack travel in mm : 6.4...6.6

Del. quantity cm³/ : 0.5...0.6

100 s: (0.4...0.9)

Spread cm³ : 0.1

100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del. quantity : 31.5...32.5

1000 : (30.5...33.5)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 9,20...9,60

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,9...2,0

LOW IDLE 1

Control lever

position degrees: 13...17

Setting point w/out bumper spring

Spread cm³ : 2.50
1000 s: (3.00)

STARTING FUEL DELIVERY

```
Speed      rpm      : 100
Del.quantity cm3/    : 52.0...0.0
              1000 s: (52.0...0.0)
Rack travel in mm   : 20.10...0.00
```

HIGH IDLE

```

1st version
Aneroid pressure h: 1100
Speed          rpm   : 2500
Rack travel in mm : 9.20...9.60
Del.quantity cm3/   : 22.0...26.0
                  1000 s: (21.0...27.0)
Spread         cm3   : 2.50
                  1000 s: (3.00)

```

LOW IDLE

```
Speed          rpm      : 350
Rack travel    in mm    : 6.40...6.60
Del.quantity   cm3/     : 5.0...6.0
                1000 s   : (4.5...9.0)
Spread         cm3      : 1.00
                1000 s   : (1.50)
```

SETTING PNEUMATIC FAST IDLE (FLA)

```
Speed      rpm      : 400
Rack travel in mm : (6,7...8,1)
Del.quantity cm3/  : (5,0...13,0)
              1000 s : -
Vacuum      hPa     : 400
```

Remarks:

Start-of-delivery spacing (difference)
between max/min value 1° cam angle
maximum.

CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49° , max.
0.2 mm control-rod travel deduction
allowable after switchover point (of
starting cam) up to 1000 1/min.
Control-lever position 46.5° ,
control-rod travel deduction must be
greater than 0.2 mm after switchover

point (of starting cam).

CHECKING THE PNEUMATIC SHUTOFF BOX

-Control lever up against idle stop.
At $n = 350 \text{ 1/min}$ and $p_u = 450 \text{ mbar}$
control rod must move briskly to
control-rod travel = 0 mm

START-OF-DELIVERY ADJUSTMENT

-Start-of delivery adjustment and lock
after start-of-delivery mean value of
all cylinders, $16.3...16.7^\circ$
($16.2...16.8^\circ$) angular displacement of
the cam after cylinder 1.

ADJUSTING ACTIVE BUCKING DAMPING (ARD)

Control lever on full-load stop. At
 $n = 1000 \text{ min}^{-1}$, $I = 2.5 \text{ A}$, delivery
($7.8...9.8$) cm $\frac{3}{1000}$ strokes.

Pin projection = $16.60...16.70 \text{ mm}$

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 2,5 H3
Edition : 15.11.88
Replaces : 05.08.88
Test oil : ISO-4113

Combination no. : 0 400 075 951

Injection pump
Pump designation : PES5M55C320RS170
EP type number : 0 410 055 977
Governor
Governor design. : RSF340/2300M60-20
Governor no. : 0 420 021 111

Customer-spec. information
Customer : DB

Engine : OM602-ECE

1st version kW : 66.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 20.00...22.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.60...12.70

Del. quantity cm3/ : 3.2...3.3

100 s: (3.1...3.4)

Spread cm3 : 0.25

100 s: (0.3)

2nd speed rpm : 315.0

Rack travel in mm : 6.8...7.0

Del. quantity cm3/ : 0.5...0.6

100 s: (0.4...0.9)

Spread cm3 : 0.1

100 s: (0.15)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del. quantity : 32.0...33.0

1000 : (31.0...34.0)

Spread cm3 : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8,90...9,30

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,9...2,0

LOW IDLE 1

Control lever

position degrees: 11...15

Setting point w/out bumper spring

Spread cm³ : 2.50
 1000 s: (3.00)

STARTING FUEL DELIVERY

```
Speed      rpm      : 100
Del.quantity cm3/    : 52.0...0.0
              1000 s: (52.0...0.0)
Rack travel in mm  : 20.10...0.00
```

HIGH IDLE

```
1st version
Aneroid pressure h: 1100
Speed      rpm      : 2500
Rack travel in mm : 8.90...9.30
Del.quantity cm3/   : 22.0...26.0
              1000 s: (21.0...27.0)
Spread      cm3      : 2.50
              1000 s: (3.00)
```

LOW IDLE

```
Speed      rpm      : 315
Rack travel in mm : 6.80...7.00
Del.quantity cm3/   : 5.0...6.0
              1000 s: (4.5...9.0)
Spread      cm3      : 1.00
              1000 s: (1.50)
```

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Control lever at idle stop

```
Speed      rpm      : 340
Rack travel in mm : -
Del.quantity cm3/  : -
              1000 s: -
```

Current A : 1,8
Control lever at full-load stop
Speed rpm : 2950
Rack travel in mm : 0,0...1,0
Current

```

short-duration A : 3,0
Starting test
Speed          rpm      : 100
Del. quantity  cm3/     : -
min.           1000 s : 52,1

```

Remarks:

Pin projection = 16.60...16.70 mm

SETTING OF FBG

-Setting and locking of FBG according

to start-of-delivery average of all
cylinders $19.3...19.7^{\circ}$ ($19.2...19.8^{\circ}$).
Cam angle according to cyl. 1.

Start-of-delivery spacing (difference)
between max/min value 1° cam angle
maximum.

CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49° , max.
0.2 mm control-rod travel deduction
allowable after switchover point (of
starting cam) up to 1000 1/min.
Control-lever position 46.5° ,
control-rod travel deduction must be
greater than 0.2 mm after switchover
point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.
With $n = 315$ 1/min. and $p_u = 450$ mbar,
control rod must move quickly to
control-rod travel = 0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 2,5 H4
Edition : 15.11.88
Replaces : 05.08.88
Test oil : ISO-4113

Combination no. : 0 400 075 952

Injection pump
Pump designation : PESSM55C320RS170
EP type number : 0 410 055 977
Governor
Governor design. : RSF350/2300MS6-5
Governor no. : 0 420 021 112

Customer-spec. information
Customer : DB

Engine : OM602-ECE

1st version kW : 66.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 20.00...22.00

Firing order : 1- 2- 4- 5- 3

L19

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 3.2...3.3

100 s: (3.1...3.4)

Spread cm³ : 0.25

100 s: (0.3)

2nd speed rpm : 350.0

Rack travel in mm : 6.8...7.0

Del. quantity cm³/ : 0.5...0.6

100 s: (0.4...0.9)

Spread cm³ : 0.1

100 s: (0.15)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del. quantity : 32.0...33.0

1000 : (31.0...34.0)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8,90...9,30

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,9...2,0

LOW IDLE 1

Control lever

position degrees: 11...15

Setting point w/out bumper spring

CHECKING THE IDLE-SPEED AUXILIARY
SPRING CUTOFF

- Control-lever position 49° , max.
0.2 mm control-rod travel deduction
allowable after switchover point (of
starting cam) up to 1000 1/min.
Control-lever position 46.5° ,
control-rod travel deduction must be
greater than 0.2 mm after switchover
point (of starting cam).

CHECKING THE PNEUMATIC SHUTOFF BOX

- Control lever up against idle stop.
At $n = 350$ 1/min and $p_u = 450$ mbar
control rod must move briskly to
control-rod travel = 0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 2,5 K5
Edition : 15.11.88
Replaces : 05.08.88
Test oil : ISO-4113

Combination no. : 0 400 075 953

Injection pump
Pump designation : PESSM55C320RS170
EP type number : 0 410 055 977
Governor
Governor design. : RSF350/2300M71
Governor no. : 0 420 021 113

Customer-spec. information
Customer : DB

Engine : OM602-ECE

1st version kW : 66.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 20.00...22.00

Firing order : 1- 2- 4- 5- 3

L22

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 3.2...3.3

100 s: (3.1...3.4)

Spread cm³ : 0.25

100 s: (0.3)

2nd speed rpm : 350.0

Rack travel in mm : 6.8...7.0

Del. quantity cm³/ : 0.5...0.6

100 s: (0.4...0.9)

Spread cm³ : 0.1

100 s: (0.15)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del. quantity : 32.0...33.0

1000 : (31.0...34.0)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8,90...9,30

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,9...2,0

LOW IDLE 1

Control lever

position degrees: 11...15

Setting point w/out bumper spring

between max/min value 1° cam angle maximum.

CHECKING THE PNEUMATIC SHUTOFF BOX

-Control lever up against idle stop.

At $n = 350$ 1/min and $p_u = 450$ mbar

control rod must move briskly to

control-rod travel = 0 mm

CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49° , max.

0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min.

Control-lever position 46.5° ,

control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 b
Edition : 22.09.88
Replaces : 15.6.88
Test oil : ISO-4113

Combination no. : 0 400 076 727

Injection pump
Pump designation : PES6P120A720RS3203
EP type number : 0 412 026 728
Governor
Governor design. : RSV400...1100P2A534-
2
Governor no. : 0 421 833 290

Customer-spec. information
Customer : JOHN DEERE

Engine : 6076AF

1st version kW : 160.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY
Test pressure, bar : 27...29

Prestroke mm : 3.55...3.65
: (3.50...3.70)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 13.5...13.7

100 s : (13.2...13.9)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 400.0
Rack travel in mm : 4.8...5.0
Del. quantity cm³/ : 1.8...2.3
100 s : (1.6...2.6)
Spread cm³ : 0.4
100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 900
Del. quantity : 135.0...137.0
1000 : (132.5...139.5)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:

1st rack travel in: 9.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1195...1205
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 555...615

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.70...10.80
2nd speed rpm : 700
Rack travel in m: 12.00...12.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.90...10.10

Measurement

Speed 1/min : 500

1st pressure hPa : 470
Rack travel in m: 10.50...10.60
2nd pressure hPa : 605
Rack travel in m: 11.30...11.70
3rd pressure hPa : 900
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del. quantity cm³/ : 176.5...181.5
1000 s: (174.0...184.0)
Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm³/ : -
1000 s: (127.0...137.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 18.5...23.5
1000 s: (16.0...26.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
Starting/full-load transition speed
from holding magnet = 450 1/min. ntr ol
pring retainer.
Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 29
 Edition : 5.10.88
 Replaces : 12.02.88
 Test oil : ISO-4113
 Combination no. : 0 400 463 154
 Injection pump
 Pump designation : PES3A80D410/3RS1350
 EP type number : 0 410 483 023
 Governor
 Governor design. : RSV325...1175A8C2223
 Governor no. : 0 420 232 482

Customer-spec. information
 Customer : KHD

Engine : F3L912

1st version kW : 33.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. ,

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.20...10.50

Del. quantity cm3/ : 4.8...4.9

100 s: (4.6...5.0)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 325.0

Rack travel in mm : 6.2...6.4

Del. quantity cm3/ : 1.0...1.6

100 s: (0.8...1.7)

Spread cm3 : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del. quantity : 48.0...49.0

1000 : (46.5...50.5)

Spread cm3 : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 8.10

Speed : 1215...1225

2nd rack travel in: 4.00

Speed rpm : 1240...1270
3rd rack travel in: 4.00
Speed rpm : 1245...1275
4th rack travel in: 1420
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.8

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 465...525

TORQUE CONTROL

2nd speed rpm : 500
Rack travel in m: 10.60...10.70
3rd speed rpm : 800
Rack travel in m: 10.20...10.50
4th speed rpm : 1175
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1175
Del.quantity cm3/ : 46.0...50.0
1000 s: (44.0...52.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.10
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)
Rack travel in mm : 17.00...17.30

Remarks:

: RENAULT

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HAN 10,8 h1
Edition : 25.10.88
Replaces : 11.85
Test oil : ISO-4113

Combination no. : 0 400 676 186

Injection pump
Pump designation : PE6A95D32ORS2557
Governor
Governor design. : RSV400...1100ABC1117
-1R

Customer-spec. information
Customer : HANOMAG

Engine : D 963 N

1st version kW : 110.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
: (2.10...2.30)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

M01

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 9.90...10.00
Del. quantity cm³/ : 8.2...8.4
100 s: (8.0...8.6)
Spread cm³ : 0.35
100 s: (0.55)

2nd speed rpm : 400.0
Rack travel in mm : 8.0...8.2
Del. quantity cm³/ : 3.1...3.9
100 s: (2.8...4.1)
Spread cm³ : 0.35
100 s: (0.55)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 82.0...84.0
1000 : (80.0...86.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Testing:
1st rack travel in: 8.90
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1365
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 7.6

Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 400

Rack travel in mm : 8.00...8.20

Rack travel in mm : 2.00

Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.90...10.00

2nd speed rpm : 500

Rack travel in m: 10.70...10.80

3rd speed rpm : 865

Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 400

Del. quantity cm3/ : 31.0...39.0

1000 s: (28.5...41.5)

Spread cm3 : 3.50

1000 s: (5.50)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90

Speed rpm : 1140....1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm3/ : 122.0...132.0

1000 s: (119.0...135.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 a 2
 Edition : 11.07.88
 Replaces : 16.10.87
 Test oil : ISO-4113
 Combination no. : 0 400 844 088
 Injection pump
 Pump designation : PES4A90D41ORS2666
 EP type number : 0 410 894 029
 Governor
 Governor design. : RQV300...1400AB1065-10L
 Governor no. : 0 420 212 203
 Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM364

1st version kW : 66.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35
 : (2.20...2.40)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del. quantity cm³/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.8

Del. quantity cm³/ : 0.8...1.2

100 s: (0.6...1.4)

Spread cm³ : 0.2

100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30

2nd speed rpm : 500
 travel mm : 2.30...2.80

3rd speed rpm : 750
 travel mm : 4.10...4.30

4th speed rpm : 1500
 travel mm : 8.50...8.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Del. quantity : 63.5...64.5
 1000 : (61.5...66.5)
 Spread cm³ : 3.00
 1000 : (4.50)

RATED SPEED

1st version
 Control lever
 position degrees: 57...65

Testing:
 1st rack travel in: 9.90

Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1545...1575
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 20...28

Testing:
Speed rpm : 100
Minimum rack trave: 10.20
Speed rpm : 300
Rack travel in mm : 8.60...8.80

CONSTANT REGULATION
Speed rpm : 540...680

TORQUE CONTROL
Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 500
Rack travel in m: 11.90...12.00
3rd speed rpm : 700
Rack travel in m: 11.50...11.80
4th speed rpm : 900
Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm3/ : 50.0...53.0
1000 s: (47.5...55.5)
1000 s: (5.)
Speed rpm : 900
Del.quantity cm3/ : 52.5...55.5
1000 s: (50.0...58.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100

MO4

Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 16.60...17.00

Remarks:

:

Set shutoff stop to contact at
3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 s 1
 Edition : 14.10.88
 Replaces : 12.9.86
 Test oil : ISO-4113
 Combination no. : 0 400 876 263
 Injection pump
 Pump designation : PES6A90D41ORS2293
 EP type number : 0 410 896 031
 Governor
 Governor design. : RSV350...1300AOC1107
 L
 Governor no. : 0 420 232 415

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 352

1st version kW : 80.9
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 ,681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

MOS

Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 8.70...8.80

Del. quantity cm³/ : 5.0...5.1

100 s : (4.8...5.3)

Spread cm³ : 0.3

100 s : (0.4)

2nd speed rpm : 350
 Rack travel in mm : 6.60...7.20

Del. quantity cm³/ : 1.0...1.2

100 s : (0.8...1.4)

Spread cm³ : 0.2

100 s : (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 50.0.

Del. quantity : ..51.0

1000 : (48.0...53.0)

Spread cm³ : 3.00

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 7.70

Speed rpm : 1340...1345

2nd rack travel in: 4.00

Speed rpm : 1390...1420

4th rack travel in: 1550

Speed rpm : 0.30...1.70

Spread cm3 : 2.00
1000 s: (4.00)

LOW IDLE 1

Control lever

position degrees: ?

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.90

Testing:

Speed rpm : 100

Minimum rack travel: 19.50

Speed rpm : 350

Rack travel in mm : 6.80...7.00

Rack travel in mm : 2.00

Speed rpm : 485...545

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 8.70...8.80

2nd speed rpm : 500

Rack travel in m: 9.90...10.00

3rd speed rpm : 900

Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Del. quantity cm3/ : 47.5...49.5

1000 s: (45.0...52.0)

Speed rpm : 900

Del. quantity cm3/ : 50.0...53.5

1000 s: (48.0...56.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.70

Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 14.80...15.20

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.60...7.20

Del. quantity cm3/ : 10.0...12.0

1000 s: (8.0...14.0)

MO6

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 13,8 a
Edition : 01.09.88
Replaces : 7.83
Test oil : ISO-4113

Combination no. : 0 401 846 225

Injection pump
Pump designation : PE6P120A720RS167
EP type number : 0 411 826 053
Governor
Governor design. : RQ225/1100PA118R
Governor no. : 0 421 801 027

Customer-spec. information
Customer : FIAT

Engine : 221 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6,00X1,50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2,00...2,10
: (1,95...2,15)

Rack travel in mm : 9,00...12,00

MO7

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 17.0...17.3

100 s: (16.7...17.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 7.5...7.7

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1175
travel mm : 7.50...7.70

2nd speed rpm : 1000
travel mm : 5.90...6.10

3rd speed rpm : 500
travel mm : 5.90...6.10

4th speed rpm : 300
travel mm : 2.80...3.40

5th speed rpm : 225
travel mm : 1.40...1.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 170.0...173.0

1000 : (167.0...176.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.10
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 225
Rack travel in mm : 7.6

Testing:

Speed rpm : 100
Minimum rack travel: 9.10
Speed rpm : 225
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00
Speed rpm : 365...405

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1145...1160

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VAL 7,2 b
Edition : 19.05.88
Replaces : 18.12.87
Test oil : ISO-4113

Combination no. : 0 401 846 532

Injection pump
Pump designation : PE6P110A32ORS856
EP type number : 0 411 816 170
Governor
Governor design. : RQV250...1150PA825
Governor no. : 0 421 813 570

Customer-spec. information
Customer : VALMET

Engine : 612 DSJ

1st version kW : 165.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 13.9...14.1

100 s: (13.6...14.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 325.0

Rack travel in mm : 6.1...6.3

Del. quantity cm³/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 2.00...2.10

2nd speed rpm : 380
travel mm : 2.30...2.70

3rd speed rpm : 470
travel mm : 2.90...3.40

4th speed rpm : 1200
travel mm : 8.10...8.20

5th speed rpm : 1310
travel mm : 9.10...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1240

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 700

Del. quantity : 139.0...141.0

1000 : (136.0...144.0)

Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 11.00
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 325

Testing:

Speed rpm : 100
Minimum rack travel: 7.70
Speed rpm : 325
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION

Speed rpm : 325...500

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 415
Rack travel in m: 11.60...11.70
3rd pressure hPa : 270
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 102.5...105.5
 1000 s: (100.0...108.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 200.0...220.0
 1000 s: (196.0...224.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.10...6.30
Del. quantity cm³/ : 12.0...16.0
 1000 s: (9.5...18.5)
Spread cm³ : 3.00
 1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 a1
 Edition : 11.07.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 544A
 Injection pump
 Pump designation : PE6P100A82OLS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RQ250/1050PA627-1
 Governor no. : 0 421 801 407

Customer-spec. information
 Customer : ENASA

Engine : 95A3Z

1st version kW : 132.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

M11

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 11.3...11.5

100 s: (11.1...11.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del. quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030

Del. quantity : 113.5...115.5

1000 : (111.5...117.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.70

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1140...1170

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 350...390

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 118.0...133.0
1000 s: (114.0...137.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Remarks:

;

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 a2
 Edition : 11.07.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 544B
 Injection pump
 Pump designation : PE6P100A82QLS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RQ250/1050PA627-1
 Governor no. : 0 421 801 407

Customer-spec. information
 Customer : ENASA

Engine : 9105.14

1st version kW : 147.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

M13

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del. quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 125.0...127.0

1000 : (123.0...129.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.40

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1105...1135

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 175

Rack travel in mm : 5.0

Testing:

Speed rpm : 75

Minimum rack trave: 6.50

Speed rpm : 175

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00

Speed rpm : 240...280

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 12.40...12.50

2nd speed rpm : 650

Rack travel in m: 13.10...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del. quantity cm3/ : 126.0...131.0
1000 s: (123.5...133.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm3/ : 140.0...155.0
1000 s: (136.0...159.0)

LOW IDLE

Speed rpm : 175

Rack travel in mm : 4.90...5.10

Remarks:

;

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 a3
 Edition : 11.07.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 544C
 Injection pump
 Pump designation : PE6P100A82OLS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RQ250/1050PA627-1
 Governor no. : 0 421 801 407

Customer-spec. information
 Customer : ENASA

Engine : 9105.45

1st version kW : 147.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 11.20...11.30

Del. quantity cm3/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del. quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030

Del. quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.20

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1135...1165

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 175

Rack travel in mm : 5.0

Testing:

Speed rpm : 75

Minimum rack travel : 6.50

Speed rpm : 175

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00

Speed rpm : 240...280

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 110.0...125.0

1000 s: (106.0...129.0)

LOW IDLE

Speed rpm : 175

Rack travel in mm : 4.90...5.10

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 a4
 Edition : 11.07.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 5440
 Injection pump
 Pump designation : PE6P100AB2OLS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RQ250/1050PA627-1
 Governor no. : 0 421 801 407

Customer-spec. information
 Customer : ENASA

Engine : 9501.08

1st version kW : 136.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

M17

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 11.6...11.8

100 s : (11.4...12.0)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del. quantity cm³/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Del. quantity : 116.5...118.5

1000 : (114.5...120.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.00

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1105...1135

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 175

Rack travel in mm : 5.0

Testing:

Speed rpm : 75

Minimum rack trave: 6.50

Speed rpm : 175

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00

Speed rpm : 240...280

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 980

Rack travel in m: 12.00...12.70

2nd speed rpm : 650

Rack travel in m: 12.70...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/ : 122.0...128.0
1000 s: (120.0...130.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...155.0
1000 s: (136.0...159.0)

LOW IDLE

Speed rpm : 175

Rack travel in mm : 4.90...5.10

Remarks:

;

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 a5
 Edition : 11.07.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 544E
 Injection pump
 Pump designation : PE6P100A820LS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RQ250/1050PA627-1
 Governor no. : 0 421 801 407

Customer-spec. information
 Customer : ENASA

Engine : 9100-14V23

1st version kW : 125.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 12.8...13.0

100 s : (12.6...13.2)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del. quantity cm³/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 128.5...130.5

1000 : (126.5...132.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.50

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1105...1135

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 175

Rack travel in mm : 5.0

Testing:

Speed rpm : 75

Minimum rack trave: 6.50

Speed rpm : 175

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00

Speed rpm : 240...280

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 12.50...12.60

2nd speed rpm : 650

Rack travel in m: 12.90...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/ : 123.0...128.0
1000 s: (120.5...130.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 148.0...164.0
1000 s: (144.0...168.0)

LOW IDLE

Speed rpm : 175

Rack travel in mm : 4.90...5.10

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 a6
 Edition : 11.07.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 544F
 Injection pump
 Pump designation : PE6P100A82QLS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RQ250/1050PA627-1
 Governor no. : 0 421 801 407

Customer-spec. information
 Customer : ENASA

Engine : 9107.V3

1st version kW : 127.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 10.4...10.6

100 s: (10.2...10.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Del.quantity : 104.0...106.0

1000 : (102.0...108.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.30

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack travel: 7.50

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 350...390

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 120.0...135.0
1000 s: (116.0...139.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 d
Edition : 23.09.88
Replaces : 25.3.88
Test oil : ISO-4113

Combination no. : 0 401 846 549

Injection pump
Pump designation : PE6P100A820LS503
EP type number : 0 411 806 197
Governor
Governor design. : RQV250...1000PA811
Governor no. : 0 421 813 556

Customer-spec. information
Customer : ENASA

Engine : 95 T1 AX,BX

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 14.20...14.30

Del.quantity cm³/ : 16.5...16.7

100 s : (16.3...16.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.7...7.9

Del.quantity cm³/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 400

travel mm : 2.20...2.80

3rd speed rpm : 650

travel mm : 4.50...5.10

4th speed rpm : 1050

travel mm : 8.50...8.70

5th speed rpm : 1140

travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h : 900

Del.quantity : 165.0...167.0

1000 : (163.0...169.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:
1st rack travel in: 13.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:
Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 250...350

TORQUE CONTROL
Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 14.20...14.30
2nd speed rpm : 700
Rack travel in m: 14.70...14.90
3rd speed rpm : 850
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.70...14.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.90...13.30
2nd pressure hPa : 400
Rack travel in m: 14.10...14.20
3rd pressure hPa : 300
Rack travel in m: 13.40...13.60

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del. quantity cm³/ : 170.0...174.0
1000 s: (168.0...176.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.20
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 180.0...200.0
1000 s: (176.0...204.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION
Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 a1
Edition : 19.05.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 550
Injection pump
Pump designation : PE6P120A32ORS257
EP type number : 0 411 826 075
Governor
Governor design. : RGV250...1050PA808
Governor no. : 0 421 813 553

Customer-spec. information
Customer : ENASA

Engine : 96 T1 CX

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

M25

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1030
Rack travel in mm : 10.90...11.00
Del. quantity cm3/ : 20.9...21.1
100 s: (20.6...21.4)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 5.6...5.8
Del. quantity cm3/ : 1.7...2.3
100 s: (1.4...2.6)
Spread cm3 : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40
2nd speed rpm : 350
travel mm : 1.70...2.30
3rd speed rpm : 700
travel mm : 4.50...5.10
4th speed rpm : 1095
travel mm : 8.20...8.40
5th speed rpm : 1175
travel mm : 9.10...9.50

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1090
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1030
Aneroid pressure h: 900
Del. quantity : 209.0...211.0
1000 : (206.0...214.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:
1st rack travel in: 9.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 100
Minimum rack travel: 7.20
Speed rpm : 250
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION
Speed rpm : 250...370

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.90...11.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 510
Rack travel in m: 10.40...10.50
3rd pressure hPa : 300
Rack travel in m: 9.20...9.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 650
Del. quantity cm³/ : 187.0...193.0
1000 s: (184.0...196.0)
Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm³/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 f
Edition : 19.05.88
Replaces : 12.2.88
Test oil : ISO-4113

Combination no. : 0 401 846 551

Injection pump
Pump designation : PE6P110A32ORS263-1
EP type number : 0 411 816 175
Governor
Governor design. : RQ250/1000PA218-2
Governor no. : 0 421 801 411

Customer-spec. information
Customer : ENASA

Engine : 96 T4 AY

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 16.0...16.2

100 s : (15.7...16.5)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 1.7...2.3

100 s : (1.4...2.6)

Spread cm³ : 0.4

100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 160.0...162.0

1000 : (157.0...165.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.40

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1110...1140

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 350...390

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 143.0...163.0
1000 s: (139.0...167.0)

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 e
Edition : 24.06.88
Replaces : 25.3.88
Test oil : ISO-4113

Combination no. : 0 401 846 552

Injection pump
Pump designation : PE6P100A820LS503-1
EP type number : 0 411 806 198
Governor
Governor design. : RQ250/1000PA352-1
Governor no. : 0 421 801 412

Customer-spec. information
Customer : ENASA

Engine : 95 T1 AZ,CZ

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
: (2.85...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 14.20...14.30

Del. quantity cm³/ : 16.5...16.7

100 s : (16.3...16.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.8...8.0

Del. quantity cm³/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...17.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h : 900

Del. quantity : 165.0...167.0

1000 : (163.0...169.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 13.20

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 14.20...14.30
2nd speed rpm : 700
Rack travel in m: 14.90...15.20
3rd speed rpm : 825
Rack travel in m: 14.40...14.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 12.90...13.30

2nd pressure hPa : 400

Rack travel in m: 14.10...14.20

3rd pressure hPa : 300

Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700

Del. quantity cm³/ : 170.0...174.0
1000 s: (168.0...176.0)

Aneroid pressure h: -

Speed rpm : 500

Del. quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 9,7 f
 Edition : 19.05.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 555
 Injection pump
 Pump designation : PE6P110A720RS516
 EP type number : 0 411 816 176
 Governor
 Governor design. : RQV250...1100PA413-3
 Governor no. : 0 421 813 695

Customer-spec. information
 Customer : STEYR

Engine : WD615.64

1st version kW : 175.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

N03

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.40...14.50

Del. quantity cm3/ : 14.2...14.4

100 s : (13.9...14.7)

Spread cm3 : 0.4

100 s : (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.4...6.6

Del. quantity cm3/ : 1.9...2.4

100 s : (1.6...2.6)

Spread cm3 : 0.4

100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.90...1.30

2nd speed rpm : 350
 travel mm : 1.70...2.30

3rd speed rpm : 650
 travel mm : 4.00...4.60

4th speed rpm : 1150
 travel mm : 8.40...8.60

5th speed rpm : 1250
 travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del. quantity : 142.0...144.0

1000 : (139.0...147.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Testing:
1st rack travel in: 13.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1245...1275
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 250
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 250...370

TORQUE CONTROL
Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.40...14.50
2nd speed rpm : 700
Rack travel in m: 15.60...15.80
3rd speed rpm : 1000
Rack travel in m: 14.60...14.80
4th speed rpm : 860
Rack travel in m: 15.20...15.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 15.60...15.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.90...13.10
2nd pressure hPa : 575
Rack travel in m: 15.00...15.10
3rd pressure hPa : 310

N04

Rack travel in m: 13.60...13.80

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 160.0...164.0
1000 s: (157.0...167.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 116.0...118.0
1000 s: (113.0...121.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 175.0...195.0
1000 s: (171.0...199.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 19.0...24.0
1000 s: (16.5...26.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6 y9
Edition : 02.09.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 556
Injection pump
Pump designation : PE6P120A320RS415-1
EP type number : 0 411 826 123
Governor
Governor design. : RQ250/1100PA417-10
Governor no. : 0 421 801 445

Customer-spec. information
Customer : DAF

Engine : DKV 1160

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

NOS

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 11.10...11.20

Del. quantity cm3/ : 17.1...17.3

100 s: (16.8...17.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del. quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650

Aneroid pressure h: 700

Del. quantity : 171.0...173.0

1000 : (168.0...176.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:

1st rack travel in: 9.10

Speed rpm : 1130...1145

2nd rack travel in: 4.00

Speed rpm : 1180...1210

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.3

Testing:

Speed rpm : 100

Minimum rack trave: 7.20

Speed rpm : 250

Rack travel in mm : 6.20...6.40

Rack travel in mm : 2.00

Speed rpm : 440...480

TORQUE CONTROL

Dimension a mm : 0.68

Torque control curve - 1st version

1st speed rpm : 550

Rack travel in m: 11.50...11.70

2nd speed rpm : 1085

Rack travel in m: 10.10...10.30

3rd speed rpm : 750

Rack travel in m: 11.00...11.20

4th speed rpm : 825

Rack travel in m: 10.60...10.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 700

Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 9.40...9.60

2nd pressure hPa : 290

Rack travel in m: 10.70...10.90

3rd pressure hPa : 260

Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 1085

Del.quantity cm3/ : 158.0...162.0

1000 s: (155.0...165.0)

Aneroid pressure h: -

Speed rpm : 600

Del.quantity cm3/ : 129.0...131.0

1000 s: (126.0...134.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

Speed rpm : 1130...1145

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 320.0...360.0

1000 s: (320.0...360.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.20...6.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6y10
 Edition : 05.08.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 557
 Injection pump
 Pump designation : PE6P120A32ORS415-1
 EP type number : 0 411 826 123
 Governor
 Governor design. : RQ250/1100PA417-11
 Governor no. : 0 421 801 446

Customer-spec. information
 Customer : DAF

Engine : DKV 1160

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

N07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 17.1...17.3

100 s: (16.8...17.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650

Aneroid pressure h: 700

Del.quantity : 171.0...173.0

1000 : (168.0...176.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:

1st rack travel in: 9.10

Speed rpm : 1130...1145

2nd rack travel in: 4.00

Speed rpm : 1180...1210

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.3

Testing:

Speed rpm : 100

Minimum rack trave: 7.20

Speed rpm : 250

Rack travel in mm : 6.20...6.40

Rack travel in mm : 2.00

Speed rpm : 440...480

TORQUE CONTROL

Dimension a mm : 0.63

Torque control curve - 1st version

1st speed rpm : 550

Rack travel in m: 11.40...11.50

2nd speed rpm : 1085

Rack travel in m: 10.10...10.30

3rd speed rpm : 750

Rack travel in m: 11.00...11.20

4th speed rpm : 825

Rack travel in m: 10.60...10.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 700

Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 9.40...9.60

2nd pressure hPa : 290

Rack travel in m: 10.70...10.90

3rd pressure hPa : 260

Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 1085

Del.quantity cm3/ : 158.0...162.0

1000 s: (155.0...165.0)

Aneroid pressure h: -

Speed rpm : 600

Del.quantity cm3/ : 129.0...131.0

1000 s: (126.0...134.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

Speed rpm : 1130...1145

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 320.0...360.0

1000 s: (320.0...360.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.20...6.40

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 e10
 Edition : 05.08.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 846 736

Injection pump
 Pump designation : PE6P120A32QLS3810-10
 EP type number : 0 411 826 734
 Governor
 Governor design. : RQV350...1150PAS53
 Governor no. : 0 421 813 278

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 198.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1130

Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 17.2...17.4

100 s: (16.9...17.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 1.5...2.0
 100 s: (1.2...2.3)

Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 15.20...17.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1130

Del. quantity : 172.0...174.0

1000 : (169.0...177.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.50

Speed rpm : 1170...1180
2nd rack travel in: 4.00
Speed rpm : 1245...1275
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 350
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 385...505

START CUT-OUT

Speed 1/min : 270 (290)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1170...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 160.0...180.0
1000 s: (156.0...184.0)

Remarks:

:

APPLICATION
Pistenbully

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 m 2
Edition : 05.08.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 741
Injection pump
Pump designation : PE6P110A32OLS3814-10
EP type number : 0 411 816 741
Governor
Governor design. : RQV350...1150PA378-5
Governor no. : 0 421 813 618

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421

1st version kW : 159.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 13.4...13.6

100 s: (13.1...13.8)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 8.2...8.4

Del. quantity cm³/ : 1.3...1.9

100 s: (1.0...2.1)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 134.0...136.0

1000 : (131.5...138.5)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 11.70

Speed rpm : 1180...1190

2nd rack travel in: 4.00

Speed rpm : 1285...1315

4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 12...20

Testing:
Speed rpm : 100
Minimum rack trave: 8.50
Speed rpm : 350
Rack travel in mm : 8.20...8.40
Rack travel in mm : 2.00

CONSTANT REGULATION
Speed rpm : 375...485

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 113.0...117.0
1000 s: (110.0...120.0)
Spread cm3 : 6.00
1000 s: (9.00)
Speed rpm : 1150
Del.quantity cm3/ : 93.0...97.0 *
1000 s: (90.0...100.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1180...1190

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

* = Set at reduced-delivery stop.

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,0 k
 Edition : 01.09.88
 Replaces : 24.7.87
 Test oil : ISO-4113
 Combination no. : 0 401 846 772
 Injection pump
 Pump designation : PE6P120A32ORS3118
 EP type number : 0 411 826 726
 Governor
 Governor design. : RQV250...102SPA657
 Governor no. : 0 421 813 368

Customer-spec. information
 Customer : VOLVO

Engine : TD 121 F

1st version kW : 282.4
 Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.30...13.40

Del. quantity cm3/ : 23.8...24.0

100 s: (23.5...24.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.3...3.5

Del. quantity cm3/ : 1.8...2.3

100 s: (1.5...2.5)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.30

2nd speed rpm : 500
 travel mm : 4.10...4.90

3rd speed rpm : 700
 travel mm : 6.30...6.70

4th speed rpm : 900
 travel mm : 6.30...6.70

5th speed rpm : 1025
 travel mm : 7.30...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 238.5...240.5
1000 : (235.5...243.5)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 12.30
Speed rpm : 1085...1095
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14

Testing:
Speed rpm : 100
Minimum rack travel: 4.80
Speed rpm : 250
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 285...345

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.30...13.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.60...8.80
2nd pressure hPa : 780
Rack travel in m: 13.10...13.20
3rd pressure hPa : 100
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 139.0...141.0
1000 s: (136.0...144.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...280.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.30...3.50
Del.quantity cm3/ : 18.0...23.0
1000 s: (15.5...25.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 9,0 e 2
Edition : 01.07.88
Replaces : 2.11.87
Test oil : ISO-4113

Combination no. : 0 401 846 803

Injection pump
Pump designation : PE6P120A32ORS3141
EP type number : 0 411 826 744
Governor
Governor design. : RQV200...1100PA729
Governor no. : 0 421 813 469

Customer-spec. information
Customer : SAAB-SCANIA

Engine : DN 901

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)
Rack travel in mm : 9.00...12.00

N15

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.30...9.40

Del. quantity cm³/ : 11.7...11.9

100 s : (11.4...12.2)

Spread cm³ : 0.5

100 s : (0.8)

2nd speed rpm : 225.0
Rack travel in mm : 5.4...5.6
Del. quantity cm³/ : 1.5...1.9
100 s : (-)
Spread cm³ : 0.3
100 s : (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
travel mm : 0.50...0.90
2nd speed rpm : 350
travel mm : 2.20...2.80
3rd speed rpm : 650
travel mm : 4.90...5.50
4th speed rpm : 1145
travel mm : 8.40...8.60
5th speed rpm : 1225
travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1120
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del. quantity : 117.0...119.0
1000 : (114.0...122.0)
Spread cm³ : 5.00
1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8.30

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1210...1240

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 5...13

Testing:

Speed rpm : 100

Minimum rack travel: 6.20

Speed rpm : 225

Rack travel in mm : 4.70...4.90

Rack travel in mm : 2.00

Speed rpm : 300...360

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del. quantity cm³/ : 124.0...132.0

1000 s: (122.0...134.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 290.0...340.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225

Rack travel in mm : 4.70...4.90

Remarks:

:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
1987-01-08

Engine start of delivery: 18° BTDC

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 9,0 e
Edition : 01.07.88
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 401 846 804

Injection pump
Pump designation : PE6P120A320RS3141
EP type number : 0 411 826 744
Governor
Governor design. : RQV200...1100PA729-1
Governor no. : 0 421 813 470

Customer-spec. information
Customer : SAAB-SCANIA

Engine : DS9 02

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 13.6...13.8

100 s: (13.3...14.1)

Spread cm³ : 0.5

100 s: (0.8)

2nd speed rpm : 225.0
Rack travel in mm : 4.7...4.9
Del. quantity cm³/ : 1.1...1.5
100 s: (-)
Spread cm³ : 0.3
100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
travel mm : 0.50...0.90
2nd speed rpm : 350
travel mm : 2.20...2.80
3rd speed rpm : 650
travel mm : 4.90...5.50
4th speed rpm : 1145
travel mm : 8.40...8.60
5th speed rpm : 1250
travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1120
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del. quantity : 136.0...138.0
1000 : (133.0...141.0)
Spread cm³ : 5.00
1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 9.40

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1235...1265

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 3...11

Testing:

Speed rpm : 100

Minimum rack travel: 5.90

Speed rpm : 225

Rack travel in mm : 4.40...4.60

Rack travel in mm : 2.00

Speed rpm : 290...350

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del. quantity cm³/ : 140.0...148.0

1000 s: (138.0...150.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 290.0...340.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225

Rack travel in mm : 4.40...4.60

Remarks:

:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on December 18, 1986

Start of delivery - engine: 17° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,1 a
Edition : 04.11.88
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 401 846 811

Injection pump
Pump designation : PE6P120A320RS3148
EP type number : 0 411 826 746
Governor
Governor design. : RQ750PA783
Governor no. : 0 421 801 334

Customer-spec. information
Customer : VOLVO-PENTA

Engine : TJD121KG

1st version kW : 246.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
: (2.55...2.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 25.5...25.7

100 s : (25.2...26.0)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 1.5...2.0

100 s : (-)

Spread cm³ : 0.4

100 s : (0.7)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 255.0...257.0

1000 : (252.0...260.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 11.30

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 776...789

4th rack travel in: 850

Speed rpm : 0.00...1.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 190.0...220.0

1000 s: (-)

Remarks:

:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 u
Edition : 04.11.88
Replaces : 7.1.88
Test oil : ISO-4113

Combination no. : 0 401 846 850

Injection pump
Pump designation : PE6P110A320RS3197
EP type number : 0 411 816 752
Governor
Governor design. : RQV300...1100PA232-3
Governor no. : 0 421 813 639

Customer-spec. information
Customer : VOLVO-BM

Engine : TD102

1st version kW : 196.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 15.0...15.2

100 s: (14.7...15.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.40...1.60

2nd speed rpm : 350
travel mm : 1.70...2.30

3rd speed rpm : 700
travel mm : 4.40...5.00

4th speed rpm : 1165
travel mm : 8.70...8.90

5th speed rpm : 1255
travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 150.0...152.0

1000 : (147.0...155.0)

Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:
1st rack travel in: 10.00
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:
Speed rpm : 100
Minimum rack travel: 5.50
Speed rpm : 300
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION
Speed rpm : 300...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.00...11.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 300
Rack travel in m: 10.80...10.90
3rd pressure hPa : 170
Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm3/ : 144.0...148.0
1000 s: (142.0...150.0)
Aneroid pressure h: -
Speed rpm : 700

Del.quantity cm3/ : 118.5...121.5
1000 s: (116.0...124.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...190.0
1000 s: (146.0...194.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.90...4.10
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

APPLICATION
Loading machine

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 u1
 Edition : 04.11.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 850E
 Injection pump
 Pump designation : PE6P110A32ORS3197
 EP type number : 0 411 816 752
 Governor
 Governor design. : RQV300...1100PA232-3
 Governor no. : 0 421 813 639

Customer-spec. information
 Customer : VOLVO-BM

Engine : TD102

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 16.9...17.1

100 s: (16.6...17.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.40...1.60

2nd speed rpm : 350
 travel mm : 1.70...2.30

3rd speed rpm : 700
 travel mm : 4.40...5.00

4th speed rpm : 1165
 travel mm : 8.70...8.90

5th speed rpm : 1255
 travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 169.0...171.0

1000 : (166.0...174.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:
1st rack travel in: 11.50
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:
Speed rpm : 100
Minimum rack travel: 5.50
Speed rpm : 300
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION
Speed rpm : 300...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.50...12.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 655
Rack travel in m: 12.30...12.40
3rd pressure hPa : 255
Rack travel in m: 9.60...9.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 114.5...117.5
1000 s: (112.0...120.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...190.0
1000 s: (146.0...194.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.90...4.10
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

APPLICATION
Loading machine

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 c
Edition : 05.08.88
Replaces : 7.3.88
Test oil : ISO-4113
Combination no. : 0 401 846 860
Injection pump
Pump designation : PE6P120A32ORS3200
EP type number : 0 411 826 766
Governor
Governor design. : RQV250...1000PA808-1
Governor no. : 0 421 813 660

Customer-spec. information
Customer : ENASA

Engine : 96 R1 BX

1st version kW : 265.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 3.80...3.90
(3.75...3.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.90...12.00

Del. quantity cm3/ : 24.9...25.1

100 s : (24.6...25.4)

Spread cm3 : 0.5

100 s : (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 3.3...3.7
Del. quantity cm3/ : 1.7...2.3
100 s : (1.4...2.6)
Spread cm3 : 0.8
100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40
2nd speed rpm : 350
travel mm : 1.70...2.30
3rd speed rpm : 700
travel mm : 4.70...5.30
4th speed rpm : 1045
travel mm : 8.00...8.20
5th speed rpm : 1135
travel mm : 9.10...9.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1090
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 1200

Del. quantity : 249.0...251.0
1000 : (246.0...254.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:
1st rack travel in: 10.90
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:
Speed rpm : 100
Minimum rack travel: 5.00
Speed rpm : 250
Rack travel in mm : 3.30...3.70

CONSTANT REGULATION

Speed rpm : 250...330

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 11.90...12.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 680
Rack travel in m: 11.30...11.40
3rd pressure hPa : 420
Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 900
Del. quantity cm3/ : 240.0...246.0
1000 s: (237.0...249.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 149.0...152.0
1000 s: (146.5...154.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 160.0...180.0
1000 s: (156.0...184.0)
Rack travel in mm : 19.50...21.00

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION
Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 e
Edition : 11.07.88
Replaces : 7.3.88
Test oil : ISO-4113

Combination no. : 0 401 846 861

Injection pump
Pump designation : PE6P120A320RS3176-1
EP type number : 0 411 826 767
Governor
Governor design. : RQV250...1050PA808
Governor no. : 0 421 813 553

Customer-spec. information
Customer : ENASA

Engine : 96 R1 AX

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
: (3.75...3.95)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 21.2...21.4

100 s : (20.9...21.7)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 4.2...4.4
Del. quantity cm³/ : 2.5...3.1
100 s : (2.2...3.4)
Spread cm³ : 0.8
100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40
2nd speed rpm : 350
travel mm : 1.70...2.30
3rd speed rpm : 700
travel mm : 4.50...5.10
4th speed rpm : 1095
travel mm : 8.20...8.40
5th speed rpm : 1195
travel mm : 9.40...9.80

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1110
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 650
Aneroid pressure h: 900
Del. quantity : 212.0...214.0
1000 : (209.0...217.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:

1st rack travel in: 11.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 250
Rack travel in mm : 4.20...4.40

CONSTANT REGULATION

Speed rpm : 250...350

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.40...12.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.30
2nd pressure hPa : 390
Rack travel in m: 11.90...12.00
3rd pressure hPa : 160
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1030
Del. quantity cm3/ : 215.0...221.0
1000 s: (212.0...224.0)
Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm3/ : 151.0...153.0
1000 s: (148.0...156.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 160.0...180.0
1000 s: (156.0...184.0)
Rack travel in mm : 19.50...21.00

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm
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